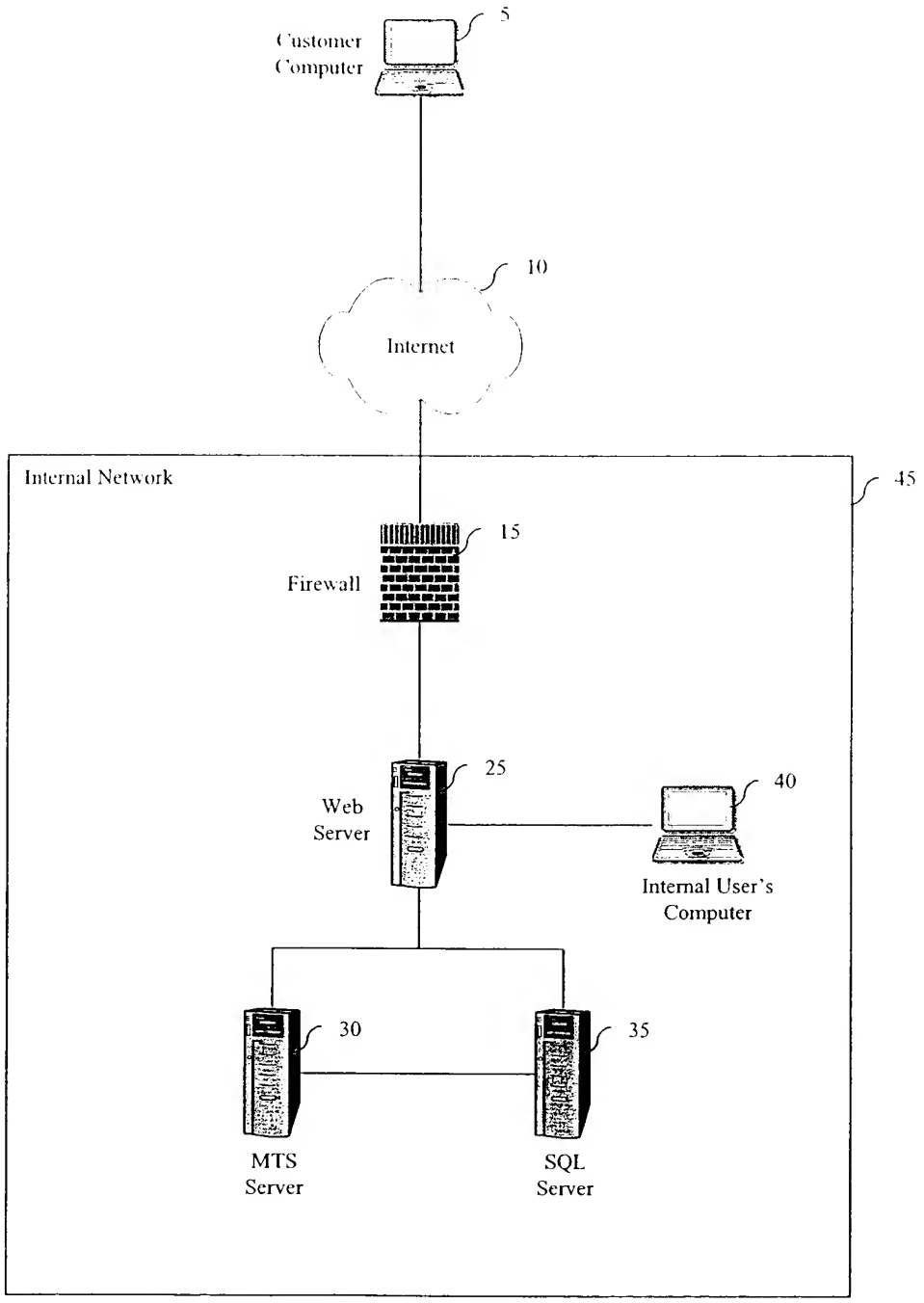


FIG. 1
(Prior Art)

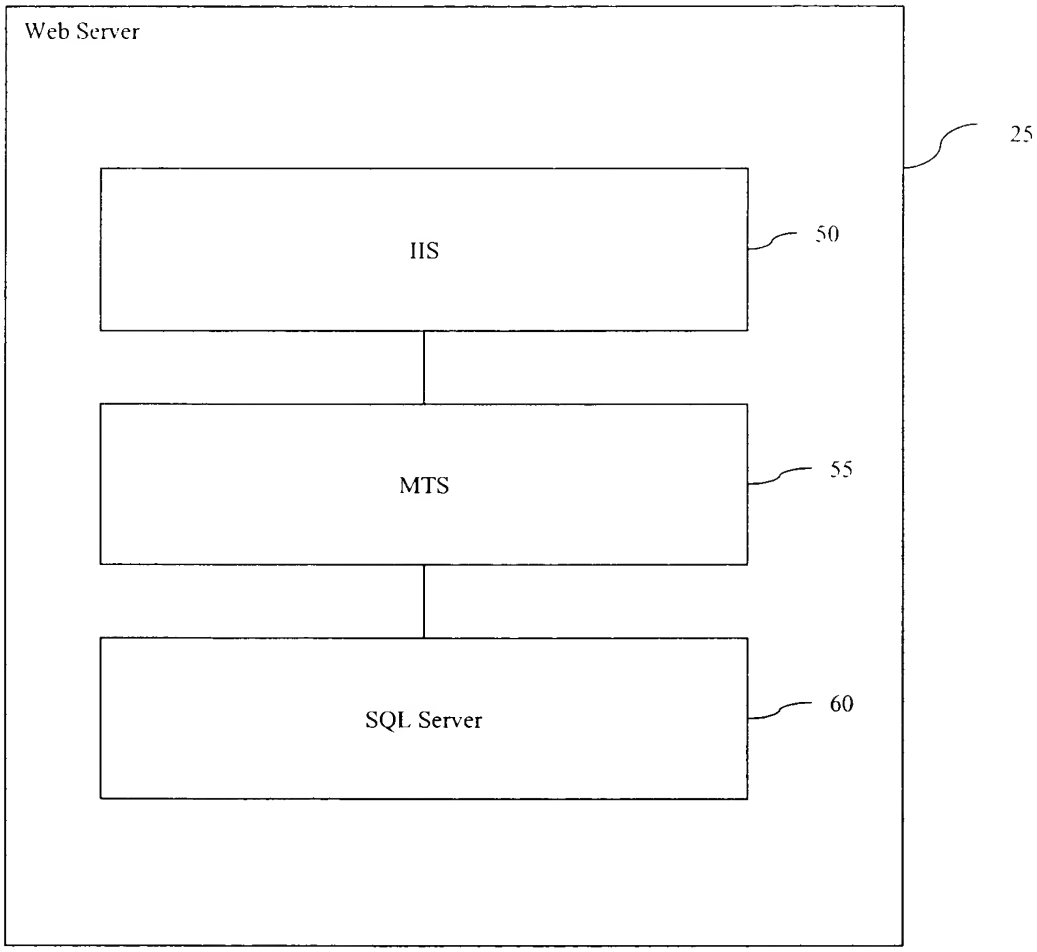


FIG.2
(Prior Art)

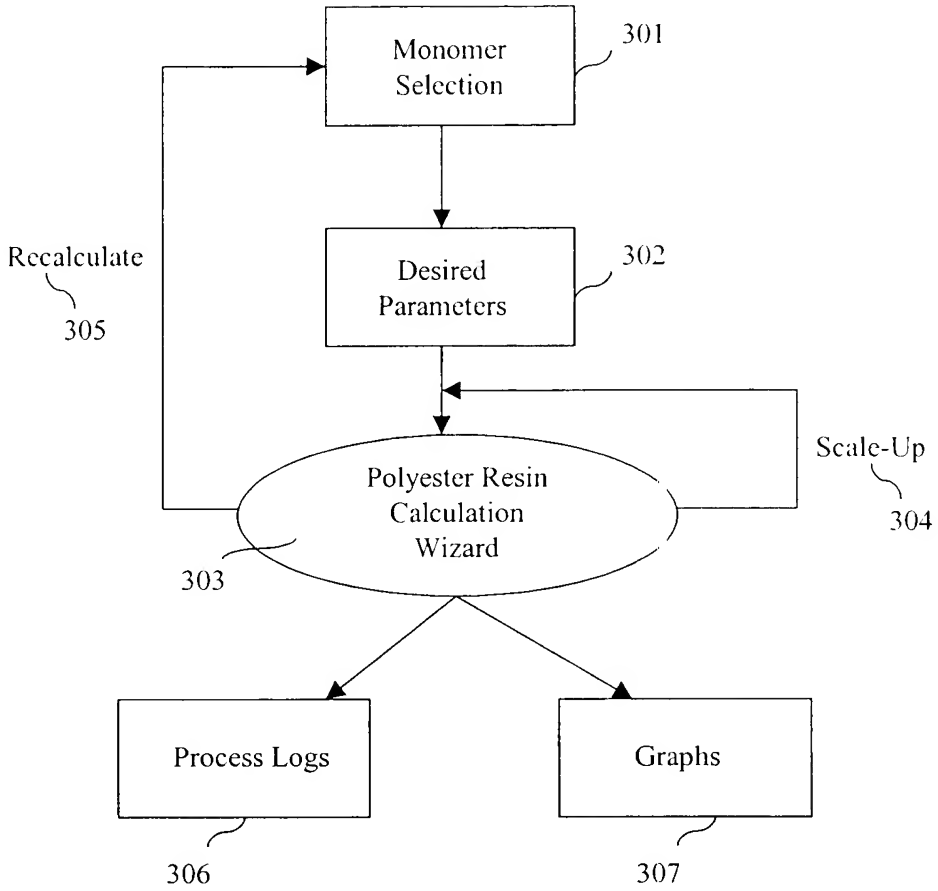

Monomer Selection
301
Desired Parameters
302
Recalculate
305
Scale-Up
304
Polyester Resin Calculation Wizard
303
Process Logs
306
Graphs
307

FIGURE 3A

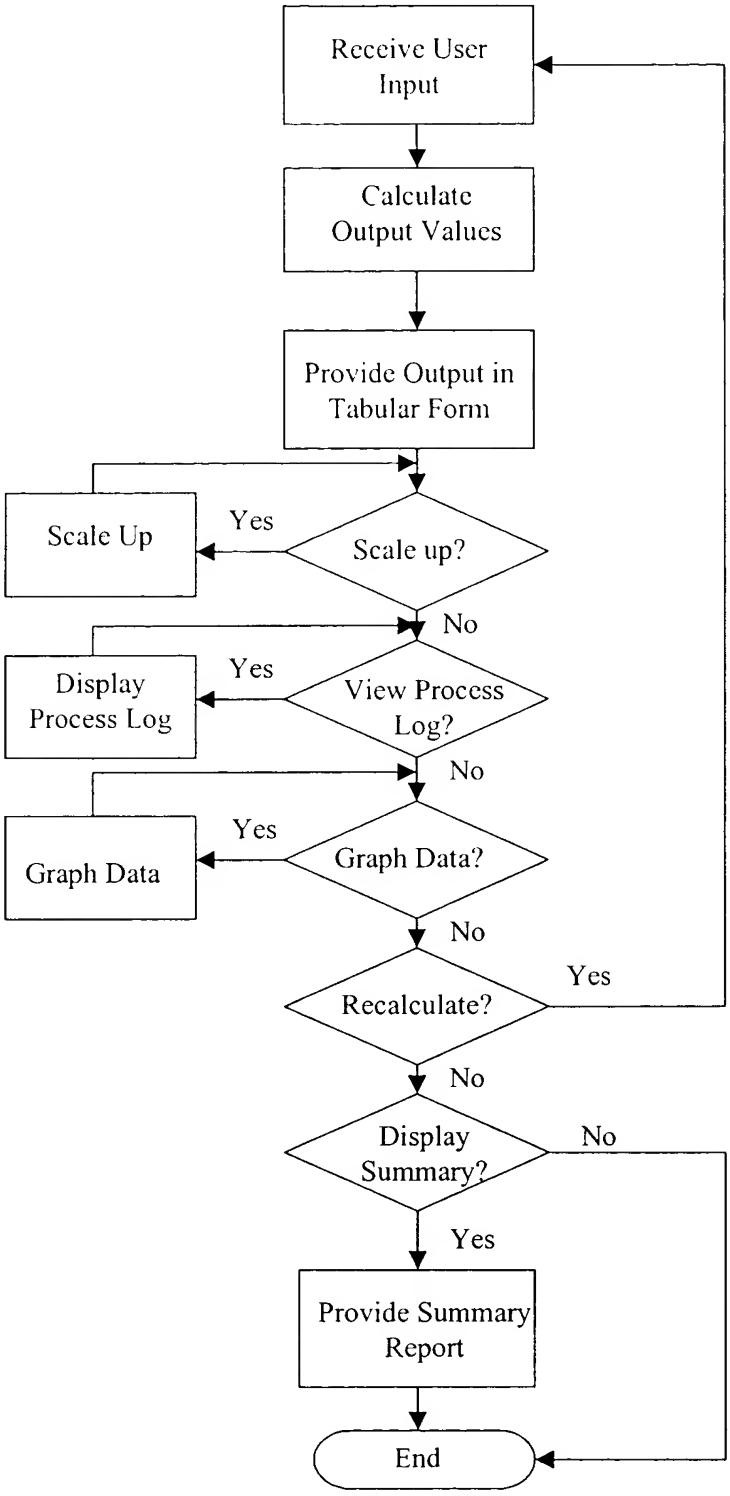
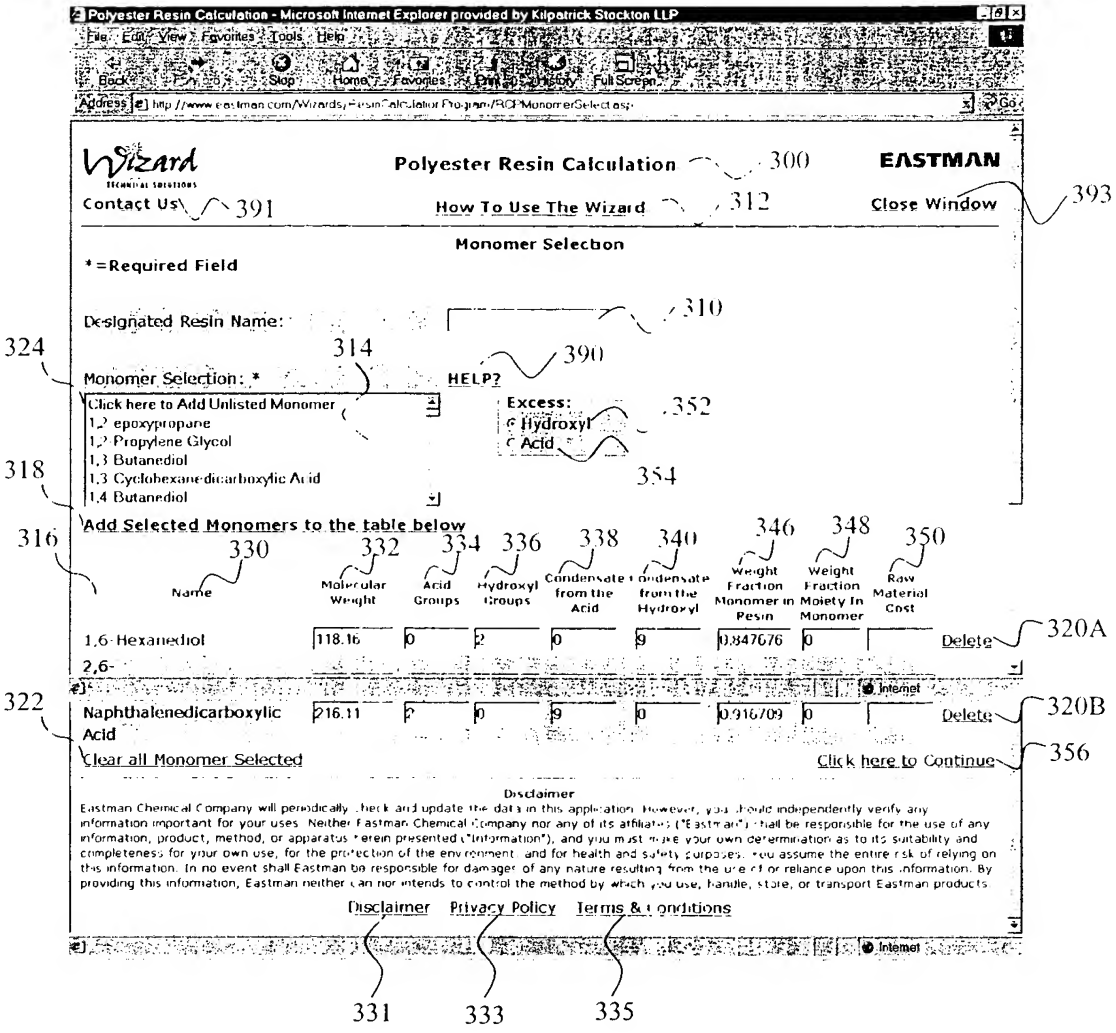

Receive User Input
Calculate Output Values
Provide Output in Tabular Form
Scale up?
Yes
Scale Up
No
View Process Log?
Yes
Display Process Log
No
Graph Data?
Yes
Graph Data
No
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 3B


Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Polyester Resin Calculation
300
EASTMAN
Contact Us
391
How To Use The Wizard
312
Close Window
393
Monomer Selection
*=Required Field
Designated Resin Name:
310
324
314
Monomer Selection: *
HELP?
390
Click here to Add Unlisted Monomer
1,2 epoxypropane
1,2 Propylene Glycol
1,3 Butanediol
1,3 Cyclohexanedicarboxylic Acid
1,4 Butanediol
Excess:
Hydroxyl
Acid
352
354
318
Add Selected Monomers to the table below
316
330
332
334
336
338
340
346
348
350
Name
Molecular Weight
Acid Groups
Hydroxyl Groups
Condensate from the Acid
Condensate from the Hydroxyl
Weight Fraction Monomer in Resin
Weight Fraction Moiety In Monomer
Raw Material Cost
1,6-Hexanediol
118.16
0
2
0
9
0.847676
0
Delete
320A
2,6-
322
Naphthalenedicarboxylic Acid
216.11
2
0
9
0
0.916709
0
Delete
320B
Clear all Monomer Selected
Click here to Continue
356
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331
333
335

FIGURE 3C

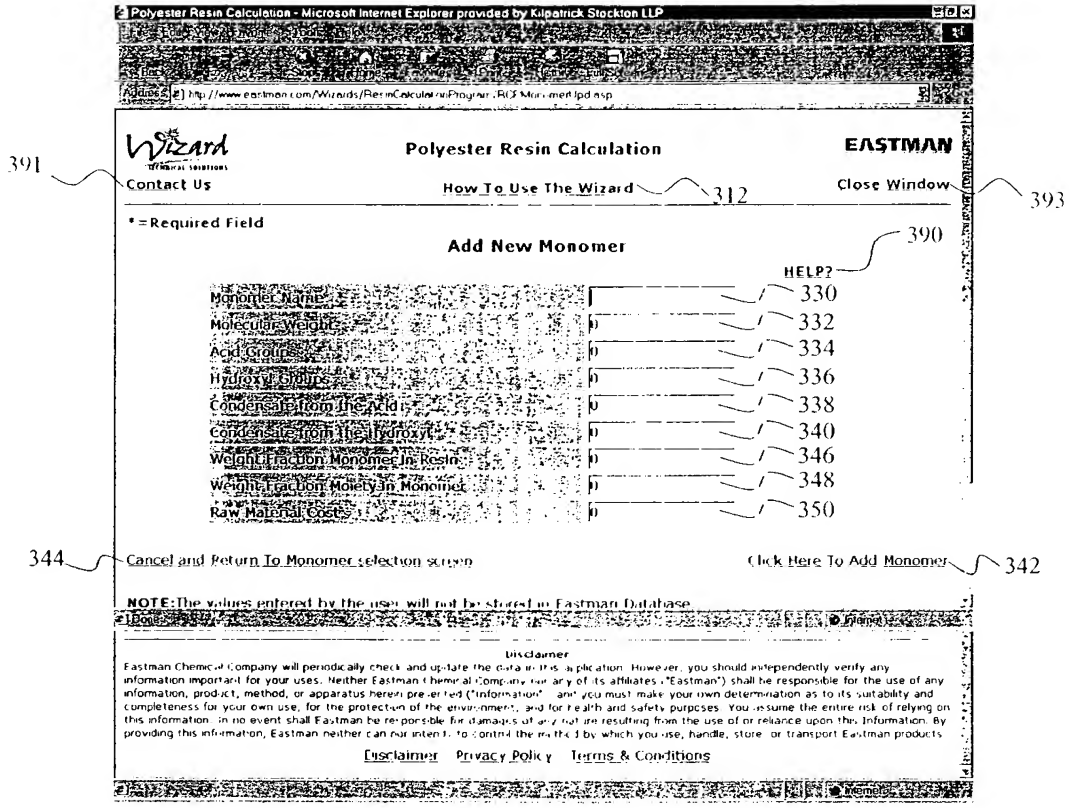
Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Polyester Resin Calculation
EASTMAN
391
Contact Us
How To Use The Wizard
312
Close Window
393
*=Required Field
Add New Monomer
390
HELP?
Monomer Name
330
Molecular Weight
332
Acid Groups
334
Hydroxyl Groups
336
Condensate from the Acid
338
Condensate from the Hydroxyl
340
Weight Fraction Monomer In Resin
346
Weight Fraction Moiety In Monomer
348
Raw Material Cost
350
344
Cancel and Return To Monomer selection screen
Click Here To Add Monomer
342
NOTE: The values entered by the user will not be stored in Eastman Database
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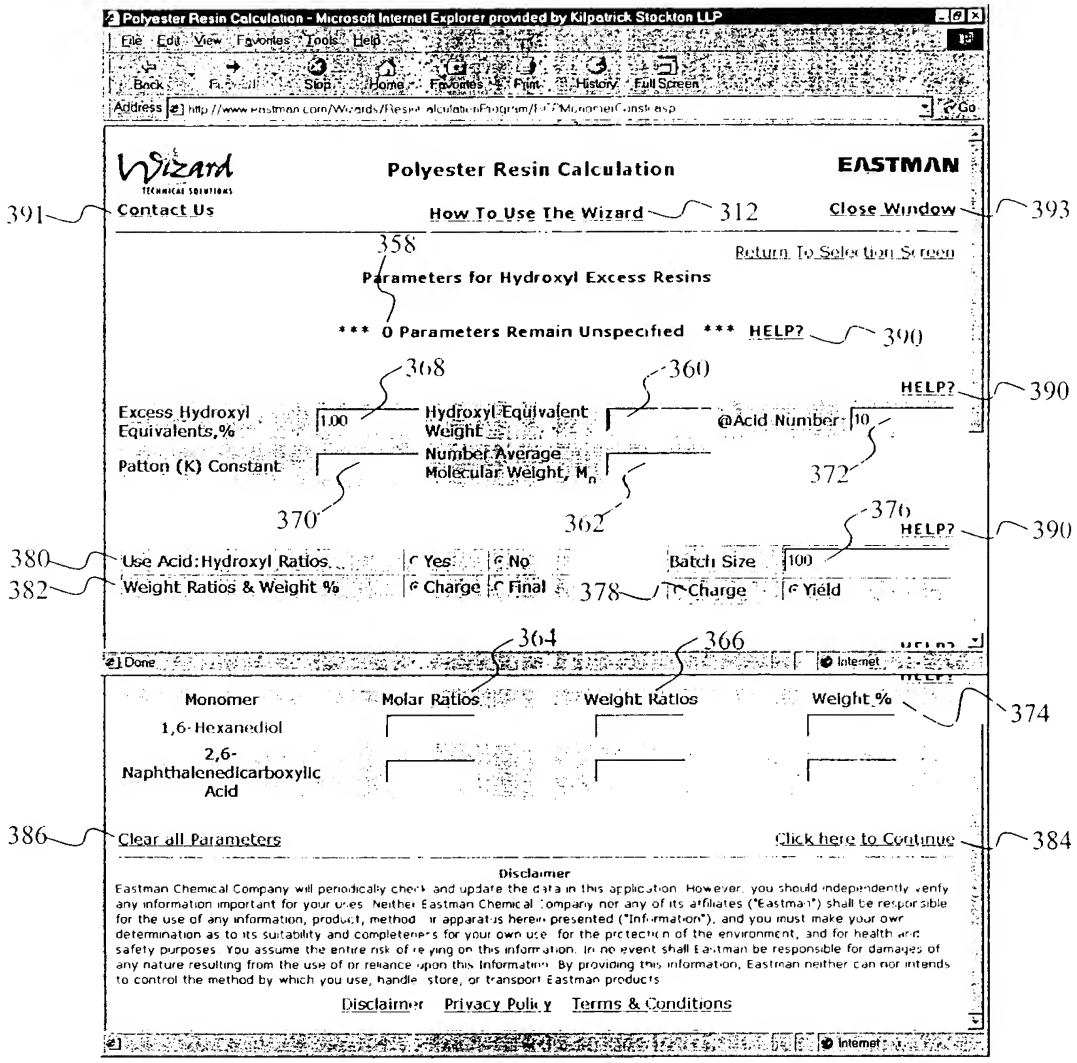
FIGURE 3D


Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Polyester Resin Calculation
EASTMAN
Contact Us
How To Use The Wizard
Close Window
Return To Selection Screen
Parameters for Hydroxyl Excess Resins
*** 0 Parameters Remain Unspecified *** HELP?
Excess Hydroxyl Equivalents,%
Hydroxyl Equivalent Weight
@Acid Number
Patton (K) Constant
Number Average Molecular Weight, Mn
Use Acid:Hydroxyl Ratios
Yes
No
Batch Size
Weight Ratios & Weight %
Charge
Final
Charge
Yield
Monomer
Molar Ratios
Weight Ratios
Weight %
1,6-Hexanediol
2,6-Naphthalenedicarboxylic Acid
Clear all Parameters
Click here to Continue
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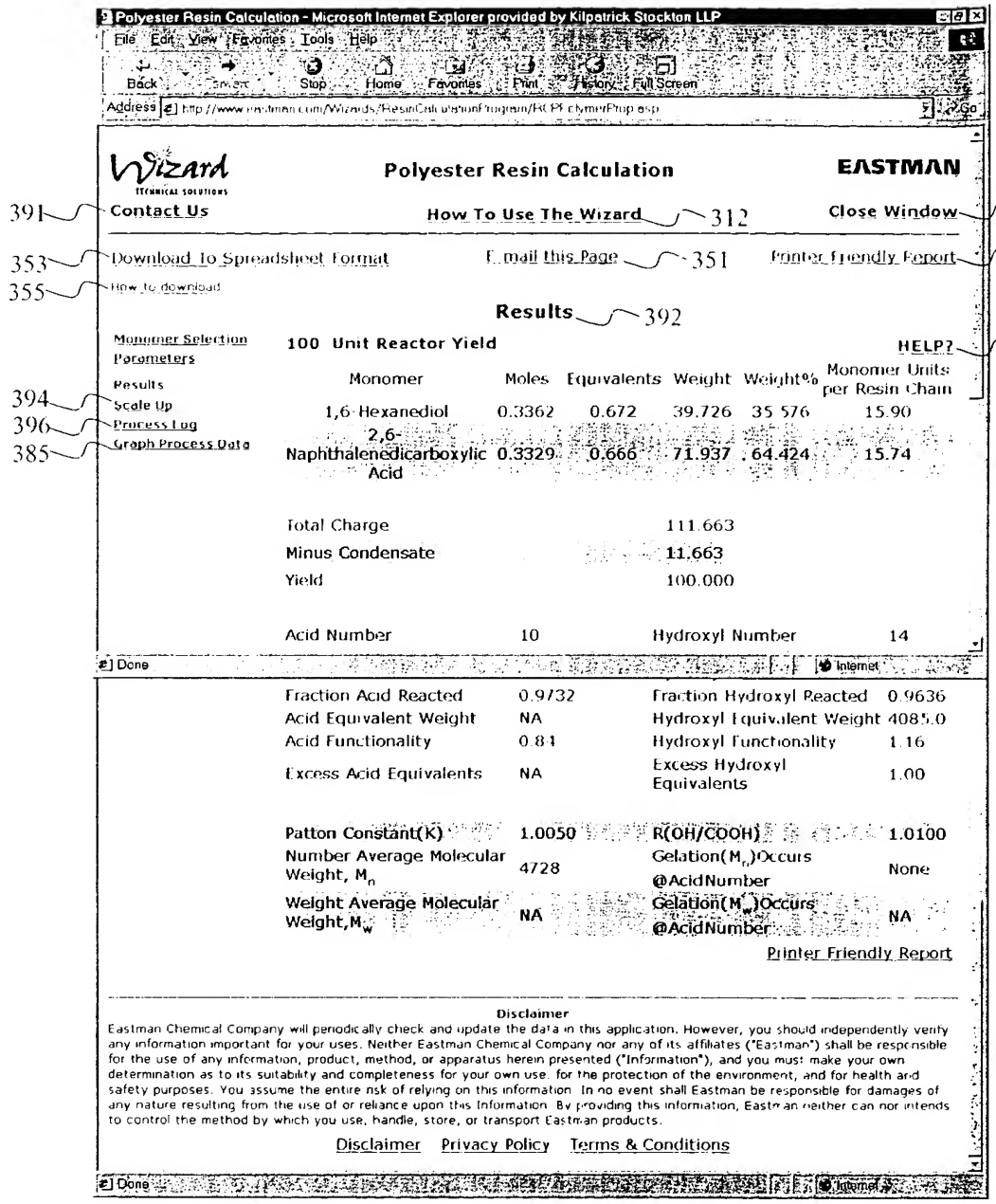
391
312
393
358
390
308
360
372
370
362
376
380
382
378
364
366
374
386
384

FIGURE 3E


Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Forward Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/ResinCalculation/Program/RCPolymerProp.asp
Go
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Polyester Resin Calculation
EASTMAN
391 Contact Us
How To Use The Wizard 312
Close Window 393
353 Download To Spreadsheet Format
E-mail this Page 351
Printer Friendly Report 399
355 How to download
Results 392
Monomer Selection Parameters
Results
394 Scale Up
396 Process Log
385 Graph Process Data
100 Unit Reactor Yield
HELP? 390
Monomer | Moles | Equivalents | Weight | Weight% | Monomer Units per Resin Chain
1,6-Hexanediol | 0.3362 | 0.672 | 39.726 | 35.576 | 15.90
2,6-Naphthalenedicarboxylic Acid | 0.3329 | 0.666 | 71.937 | 64.424 | 15.74
Total Charge 111.663
Minus Condensate 11.663
Yield 100.000
Acid Number 10
Hydroxyl Number 14
Done
Internet
Fraction Acid Reacted 0.9732
Fraction Hydroxyl Reacted 0.9636
Acid Equivalent Weight NA
Hydroxyl Equivalent Weight 4085.0
Acid Functionality 0.84
Hydroxyl Functionality 1.16
Excess Acid Equivalents NA
Excess Hydroxyl Equivalents 1.00
Patton Constant(K) 1.0050
R(OH/COOH) 1.0100
Number Average Molecular Weight, Mn 4728
Gelation(Mn)Occurs @AcidNumber None
Weight Average Molecular Weight, Mw NA
Gelation(Mw)Occurs @AcidNumber NA
Printer Friendly Report
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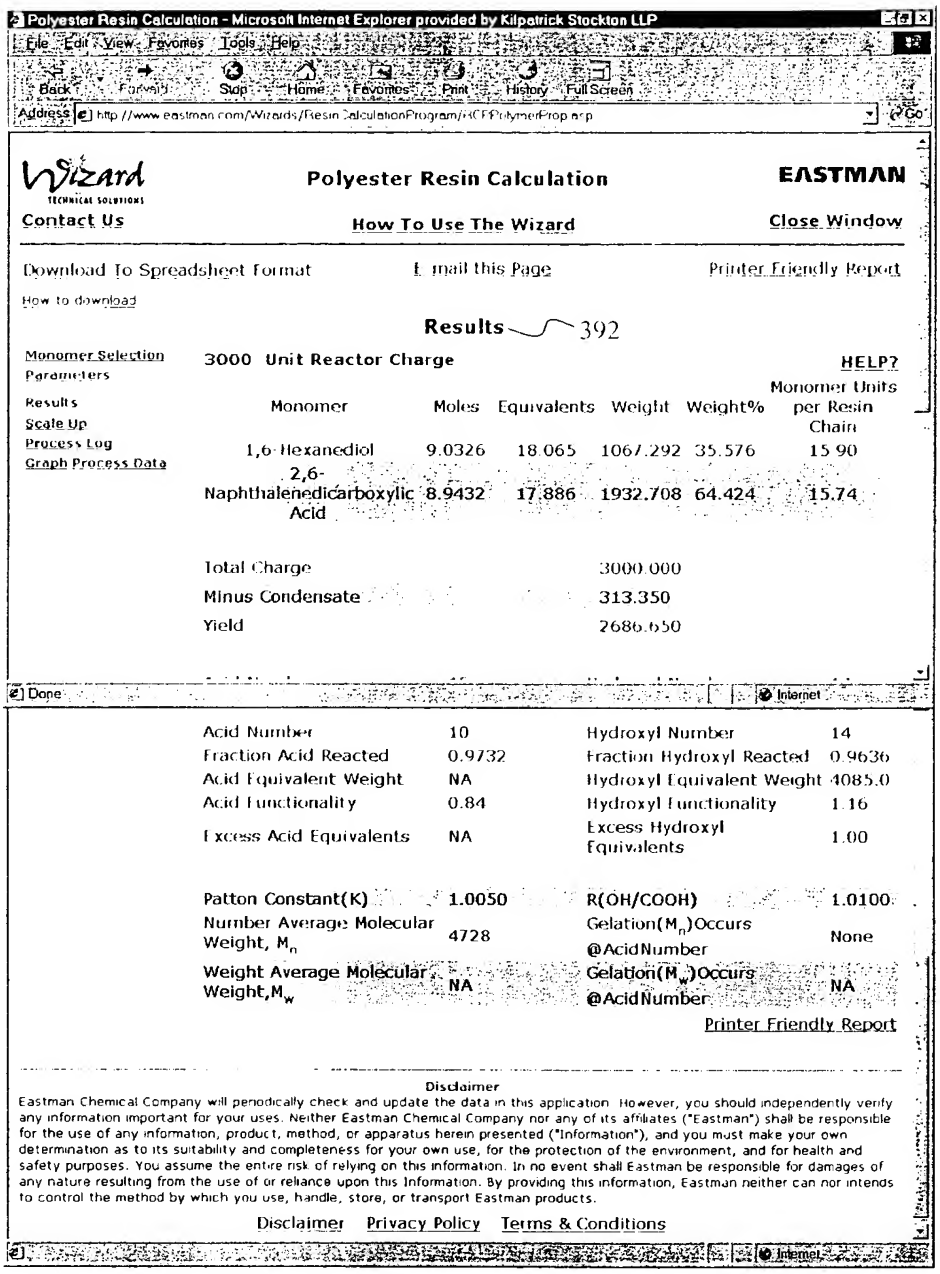
Done
Internet

FIGURE 3F


Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Forward Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/ResinCalculationProgram/rCFPolymerProp.asp
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Close Window
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Printer Friendly Report
How to download
Results
392
Monomer Selection Parameters
Results
Scale Up
Process Log
Graph Process Data
3000 Unit Reactor Charge
HELP?
Monomer
Moles
Equivalents
Weight
Weight%
Monomer Units per Resin Chain
1,6-Hexanediol 9.0326 18.065 1067.292 35.576 15.90
2,6-Naphthalenedicarboxylic Acid 8.9432 17.886 1932.708 64.424 15.74
Total Charge 3000.000
Minus Condensate 313.350
Yield 2686.650
Done
Internet
Acid Number 10
Hydroxyl Number 14
Fraction Acid Reacted 0.9732
Fraction Hydroxyl Reacted 0.9636
Acid Equivalent Weight NA
Hydroxyl Equivalent Weight 4085.0
Acid Functionality 0.84
Hydroxyl Functionality 1.16
Excess Acid Equivalents NA
Excess Hydroxyl Equivalents 1.00
Patton Constant(K) 1.0050
R(OH/COOH) 1.0100
Number Average Molecular Weight, Mn 4728
Gelation(Mn)Occurs @AcidNumber None
Weight Average Molecular Weight,Mw NA
Gelation(Mw)Occurs @AcidNumber NA
Printer Friendly Report
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FIGURE 3G

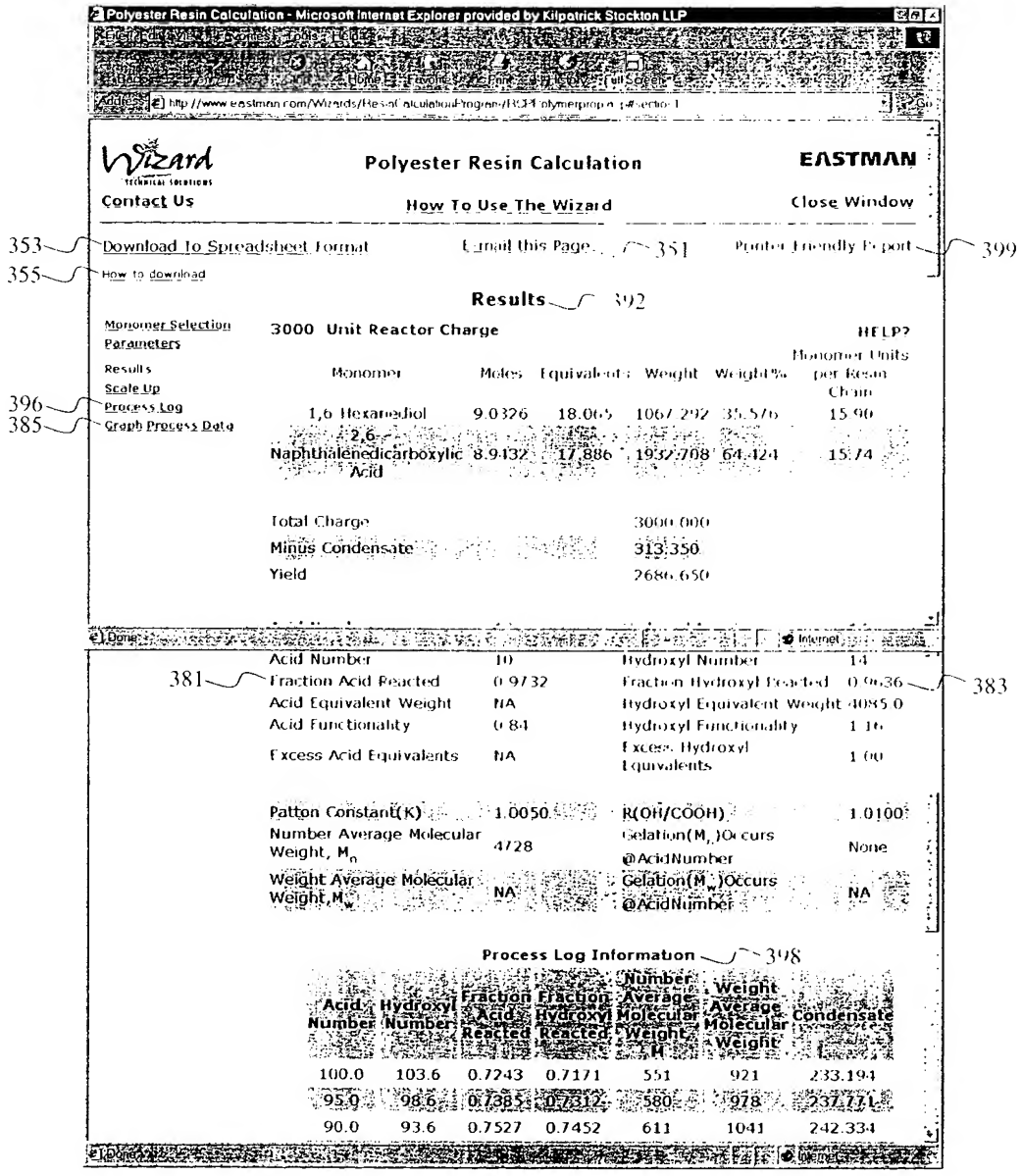
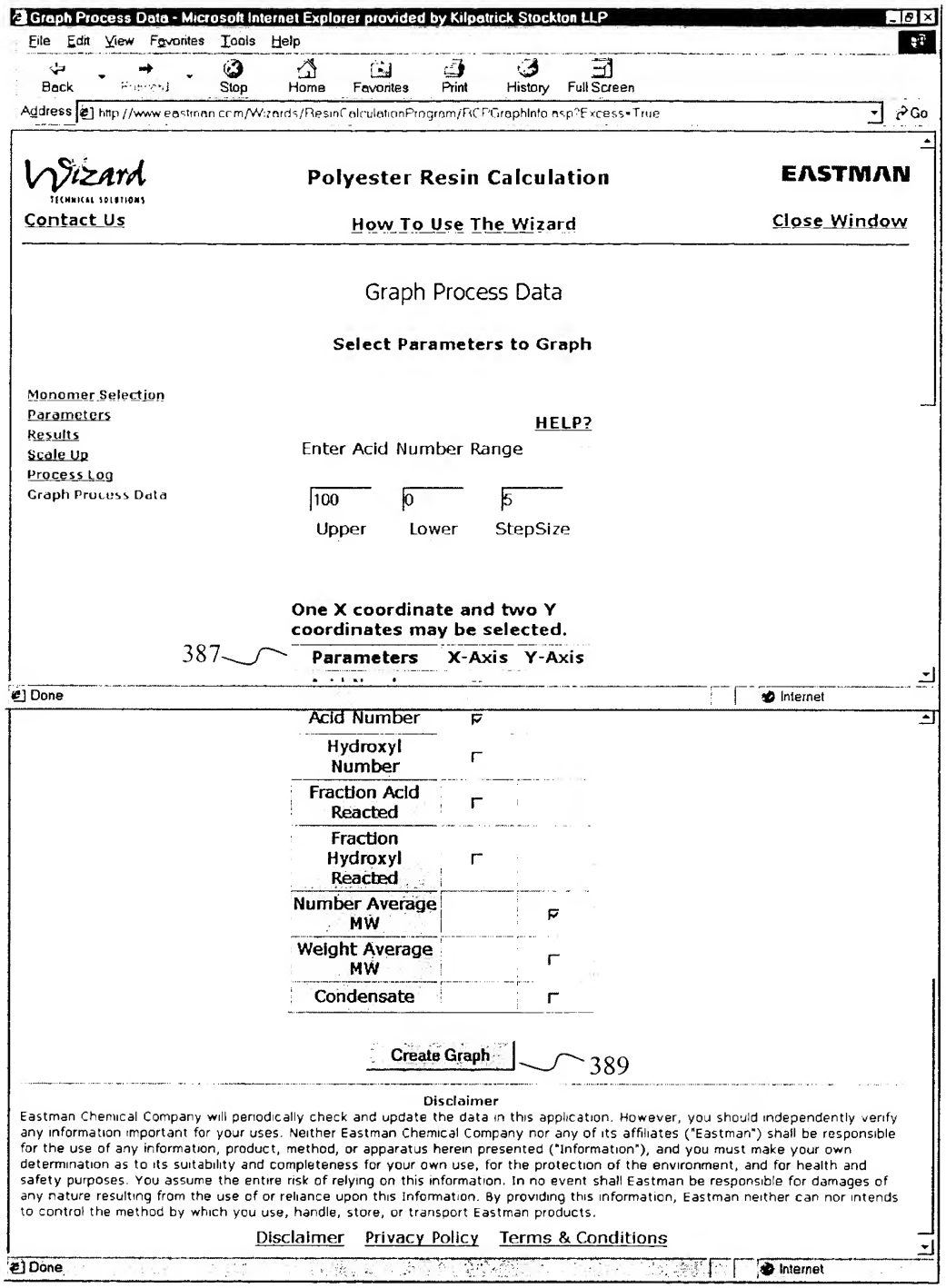

Polyester Resin Calculation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Polyester Resin Calculation
EASTMAN
Contact Us
How To Use The Wizard
Close Window
353
Download To Spreadsheet Format
E-mail this Page
351
Printer Friendly Report
399
355
How to download
Results
392
Monomer Selection Parameters
Results
Scale Up
Process Log
396
Graph Process Data
385
3000 Unit Reactor Charge
HELP?
Monomer
Moles
Equivalents
Weight
Weight%
Monomer Units per Resin Chain
1,6 Hexanediol
9.0326
18.065
1067.292
35.576
15.90
2,6-Naphthalenedicarboxylic Acid
8.9432
17.886
1932.708
64.424
15.74
Total Charge
3000.000
Minus Condensate
313.350
Yield
2686.650
Acid Number
10
Hydroxyl Number
14
381
Fraction Acid Reacted
0.9732
Fraction Hydroxyl Reacted
0.9636
383
Acid Equivalent Weight
NA
Hydroxyl Equivalent Weight
4085.0
Acid Functionality
0.84
Hydroxyl Functionality
1.16
Excess Acid Equivalents
NA
Excess Hydroxyl Equivalents
1.00
Patton Constant(K)
1.0050
R(OH/COOH)
1.0100
Number Average Molecular Weight, Mn
4728
Gelation(Mn)Occurs @AcidNumber
None
Weight Average Molecular Weight,Mw
NA
Gelation(Mw)Occurs @AcidNumber
NA
Process Log Information
398
Acid Number
Hydroxyl Number
Fraction Acid Reacted
Fraction Hydroxyl Reacted
Number Average Molecular Weight
Weight Average Molecular Weight
Condensate
100.0
103.6
0.7743
0.7171
551
921
233.194
95.0
98.6
0.7385
0.7312
580
978
237.771
90.0
93.6
0.7527
0.7452
611
1041
242.334

FIGURE 3H


Graph Process Data - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/ResinCalculationProgram/RCPGraphInfo.asp?Excess=True
Go
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Contact Us
How To Use The Wizard
Close Window
Graph Process Data
Select Parameters to Graph
Monomer Selection
Parameters
Results
Scale Up
Process Log
Graph Process Data
HELP?
Enter Acid Number Range
100
0
5
Upper
Lower
StepSize
One X coordinate and two Y coordinates may be selected.
387
Parameters
X-Axis
Y-Axis
Acid Number
Hydroxyl Number
Fraction Acid Reacted
Fraction Hydroxyl Reacted
Number Average MW
Weight Average MW
Condensate
Create Graph
389
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FIGURE 3I

Extent of Reaction - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP

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Polyester Resin Calculation

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06-Nov-2001 7:10 PM Eastern Time(GMT-5:00)

Acid Number	Number Average MW
100.0	551
95.0	580
90.0	611
85.0	646
80.0	686
75.0	730
70.0	781
65.0	840
60.0	907
55.0	987
50.0	1,082
45.0	1,198
40.0	1,341
35.0	1,523
30.0	1,761
25.0	2,089
20.0	2,567
15.0	3,327
10.0	4,728
5.0	8,166
0.0	29,945

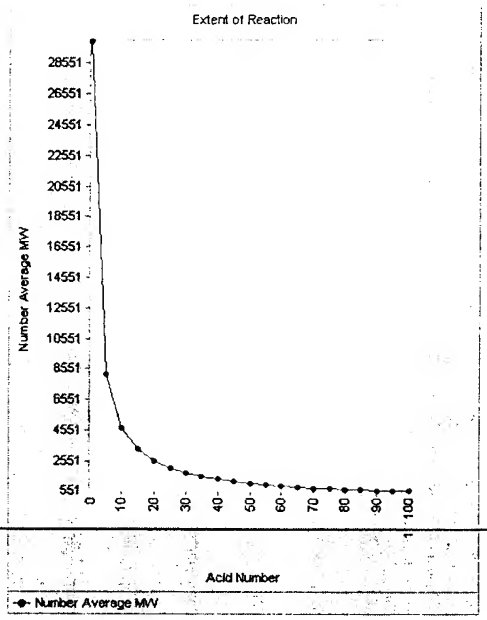

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FIGURE 3J

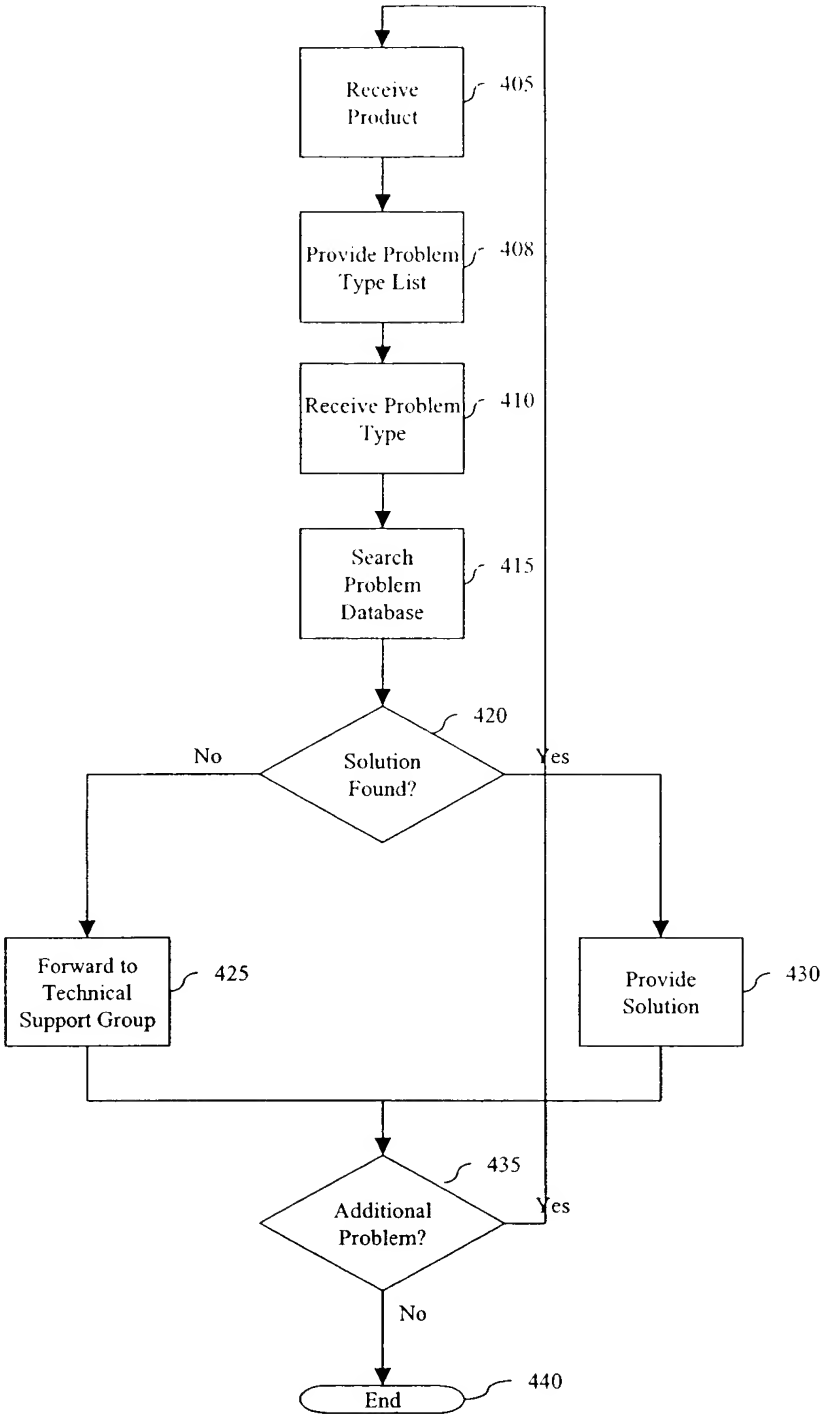
Receive Product
405
Provide Problem Type List
408
Receive Problem Type
410
Search Problem Database
415
Solution Found?
420
No
Yes
Forward to Technical Support Group
425
Provide Solution
430
Additional Problem?
435
Yes
No
End
440

FIG. 4

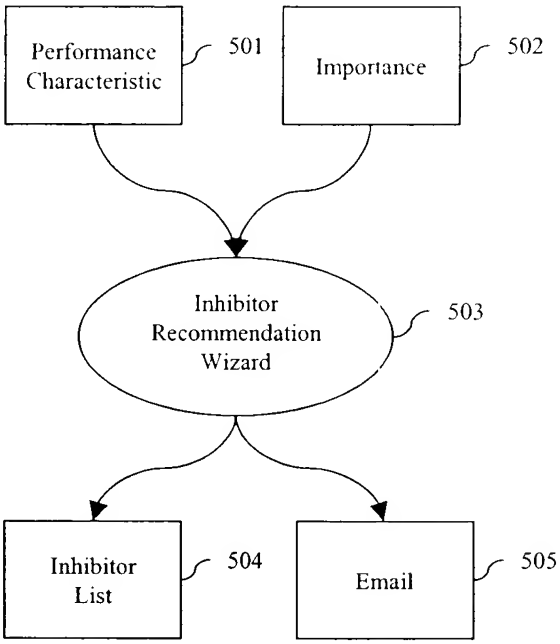
Performance Characteristic
501
Importance
502
Inhibitor Recommendation Wizard
503
Inhibitor List
504
Email
505

FIG. 5A

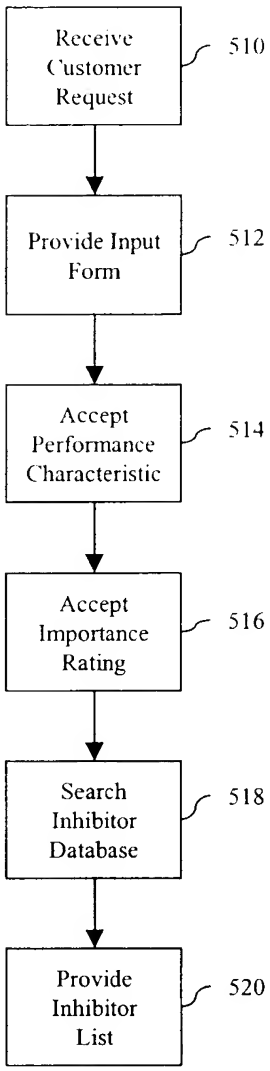
Receive Customer Request
510
Provide Input Form
512
Accept Performance Characteristic
514
Accept Importance Rating
516
Search Inhibitor Database
518
Provide Inhibitor List
520

FIG. 5B

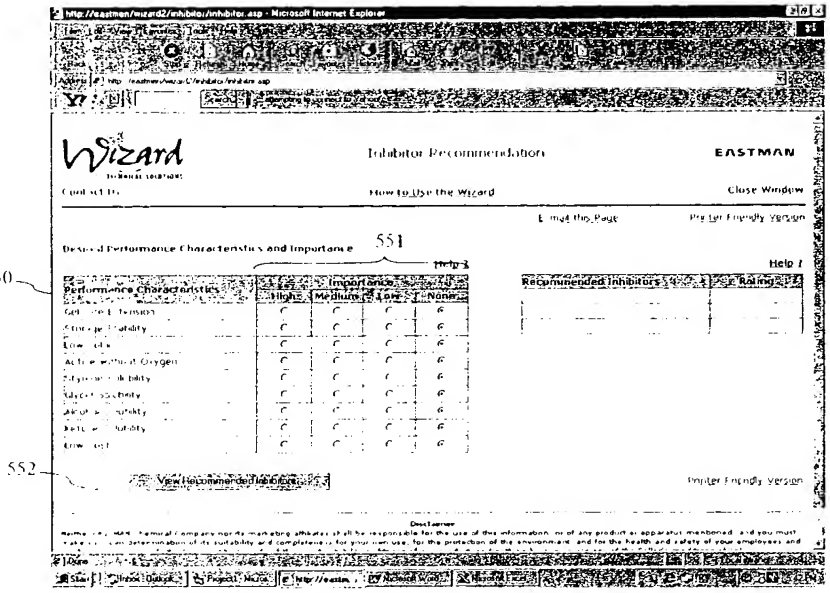
Wizard
Inhibitor Recommendation
EASTMAN
How to Use the Wizard
Close Window
Printer Friendly Version
Desired Performance Characteristics and Importance
551
550
Performance Characteristics
High
Medium
Low
None
Recommended Inhibitors
Rating
552
View Recommended Inhibitors
Disclaimer

FIG. 5C

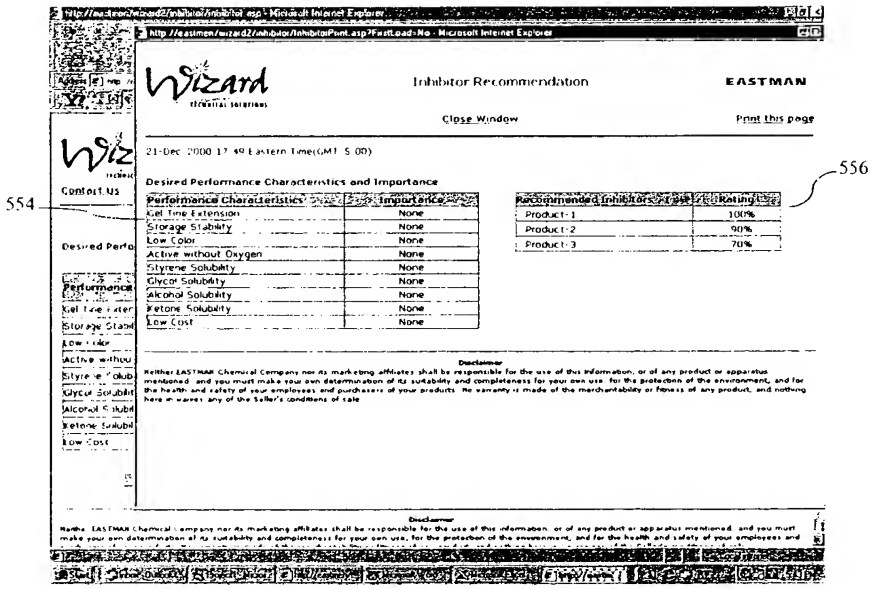
Wizard
Inhibitor Recommendation
EASTMAN
Close Window
Print this page
21-Dec-2000 17:49 Eastern Time(GMT -5:00)
Desired Performance Characteristics and Importance
554
556
Performance Characteristics
Importance
Gel Time Extension
Storage Stability
Low Color
Active without Oxygen
Styrene Solubility
Glycol Solubility
Alcohol Solubility
Ketone Solubility
Low Cost
None
Recommended Inhibitors
Rating
Product-1
100%
Product-2
90%
Product-3
70%
Disclaimer

FIG. 5D

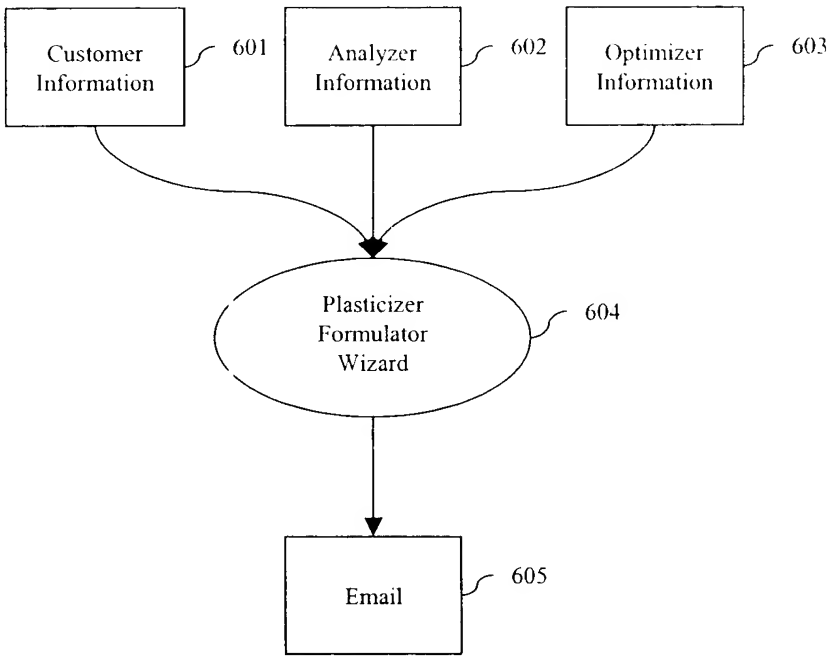
Customer Information
601
Analyzer Information
602
Optimizer Information
603
Plasticizer Formulator Wizard
604
Email
605

FIG. 6A

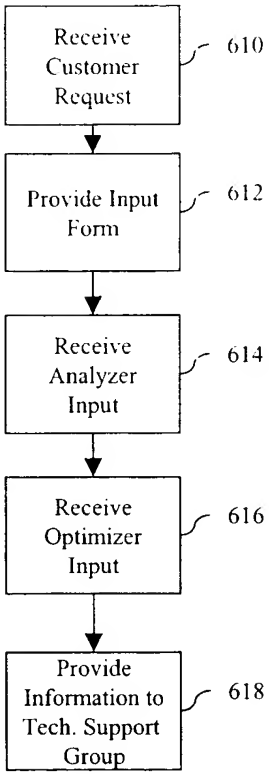
Receive Customer Request
610
Provide Input Form
612
Receive Analyzer Input
614
Receive Optimizer Input
616
Provide Information to Tech. Support Group
618

FIG. 6B

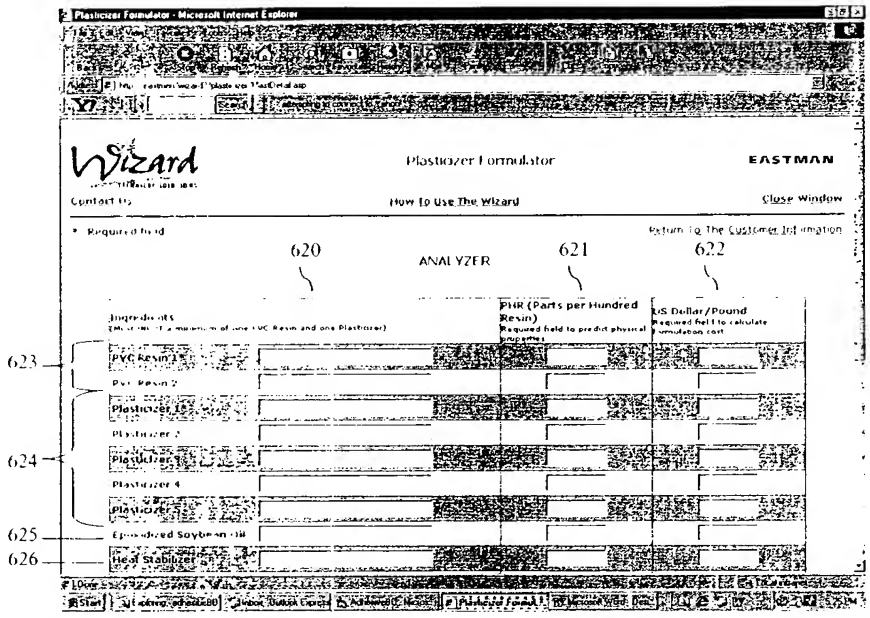
Plasticizer Formulator - Microsoft Internet Explorer
Wizard
Plasticizer Formulator
EASTMAN
Contact Us
How To Use The Wizard
Close Window
* Required field
Return To The Customer Information
620
ANALYZER
621
622
PHR (Parts per Hundred Resin)
US Dollar/Pound
623
PVC Resin 1
PVC Resin 2
624
Plasticizer 1
Plasticizer 2
Plasticizer 3
Plasticizer 4
625
Epoxidized Soybean Oil
626
Heat Stabilizer

FIG. 6C

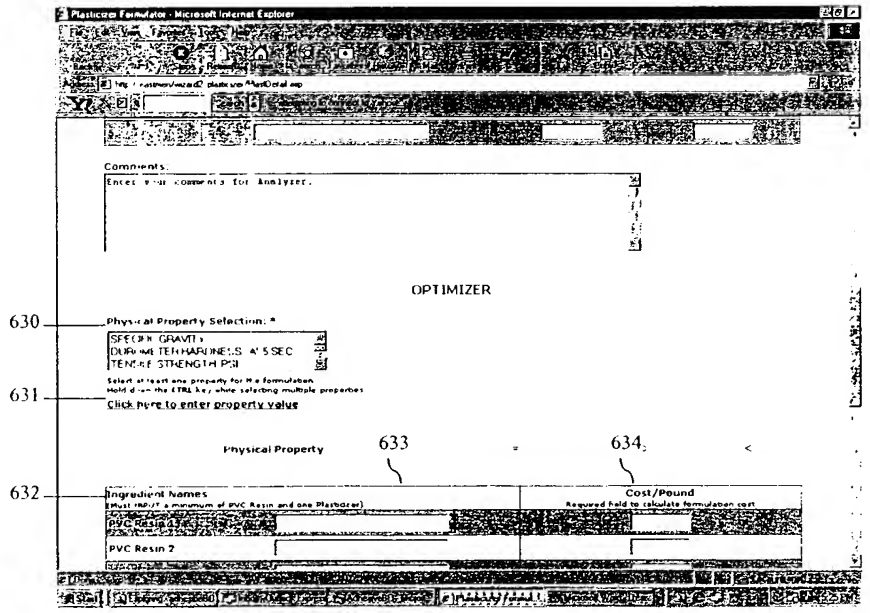
Plasticizer Formulator - Microsoft Internet Explorer
Comments:
Enter your comments for Analyzer.
OPTIMIZER
630
Physical Property Selection: *
SPECIFIC GRAVITY
DUROMETER HARDNESS A/ 5 SEC
TENSILE STRENGTH PSI
631
Click here to enter property value
Physical Property
633
634
632
Ingredient Names
Cost/Pound
PVC Resin 1
PVC Resin 2

FIG. 6D

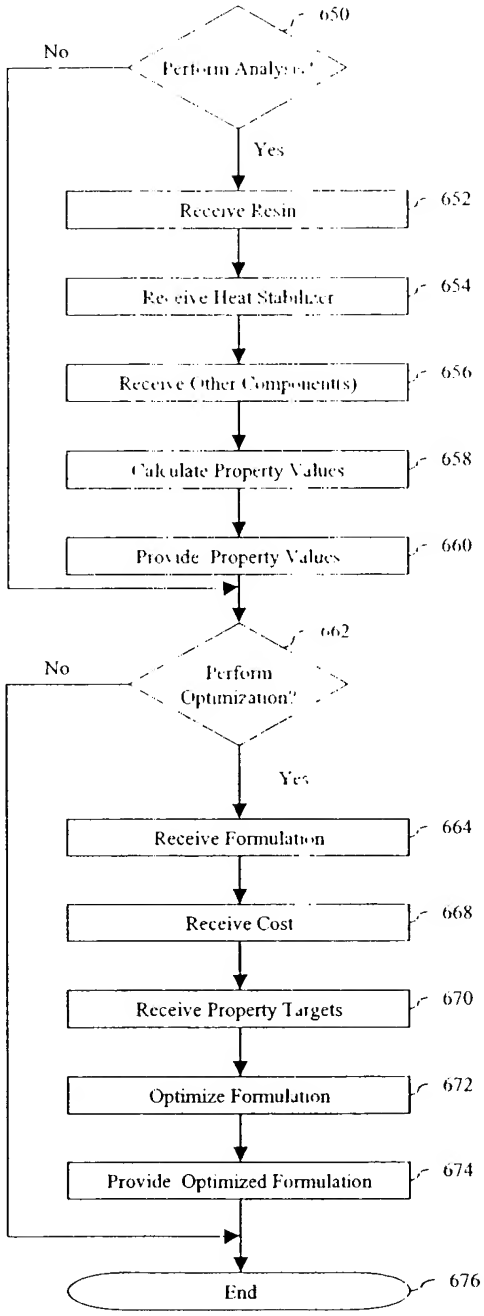
650
Perform Analysis?
No
Yes
Receive Resin
652
Receive Heat Stabilizer
654
Receive Other Component(s)
656
Calculate Property Values
658
Provide Property Values
660
662
Perform Optimization?
No
Yes
Receive Formulation
664
Receive Cost
668
Receive Property Targets
670
Optimize Formulation
672
Provide Optimized Formulation
674
End
676

FIG. 6E

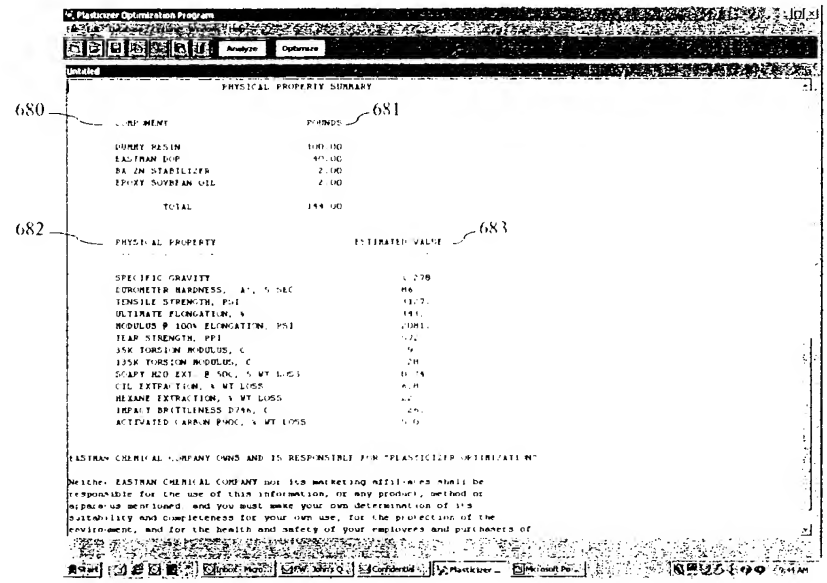
680
681
682
683
Plasticizer Optimization Program
Analyze
Optimize
Untitled
PHYSICAL PROPERTY SUMMARY
COMPONENT
POUNDS
DUMMY RESIN 100.00
EASTMAN DOP 40.00
BA ZN STABILIZER 2.00
EPOXY SOYBEAN OIL 2.00
TOTAL 144.00
PHYSICAL PROPERTY
ESTIMATED VALUE
SPECIFIC GRAVITY 1.278
DUROMETER HARDNESS, A?, 5 SEC 86
TENSILE STRENGTH, PSI 1172.
ULTIMATE ELONGATION, % 191.
MODULUS @ 100% ELONGATION, PSI 1081.
TEAR STRENGTH, PPI 172
35K TORSION MODULUS, C 6
135K TORSION MODULUS, C 28
SOAPY H2O EXT, @ 50C, % WT LOSS 0.79
OIL EXTRACTION, % WT LOSS 6.8
HEXANE EXTRACTION, % WT LOSS 11
IMPACT BRITTLENESS D746, C 25
ACTIVATED CARBON PROC, % WT LOSS 0.0
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FIG. 6F

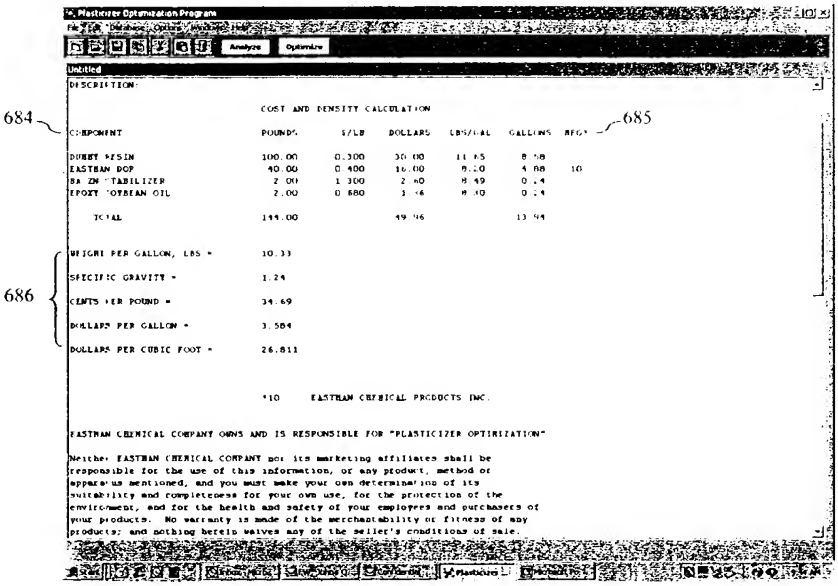
684
685
686
Plasticizer Optimization Program
Analyze
Optimize
Untitled
DISCRIPTION:
COST AND DENSITY CALCULATION
COMPONENT
POUNDS
$/LB
DOLLARS
LBS/GAL
GALLONS
PHR
DUMMY RESIN 100.00 0.300 30.00 11.65 8.58
EASTMAN DOP 40.00 0.400 16.00 8.20 4.88 10
BA ZN STABILIZER 2.00 1.300 2.60 8.49 0.24
EPOXY SOYBEAN OIL 2.00 0.680 1.36 8.30 0.24
TOTAL 144.00 49.96 13.94
WEIGHT PER GALLON, LBS = 10.33
SPECIFIC GRAVITY = 1.24
CENTS PER POUND = 34.69
DOLLARS PER GALLON = 3.584
DOLLARS PER CUBIC FOOT = 26.811
*10 EASTMAN CHEMICAL PRODUCTS INC.
EASTMAN CHEMICAL COMPANY OWNS AND IS RESPONSIBLE FOR "PLASTICIZER OPTIMIZATION"
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FIG. 6G

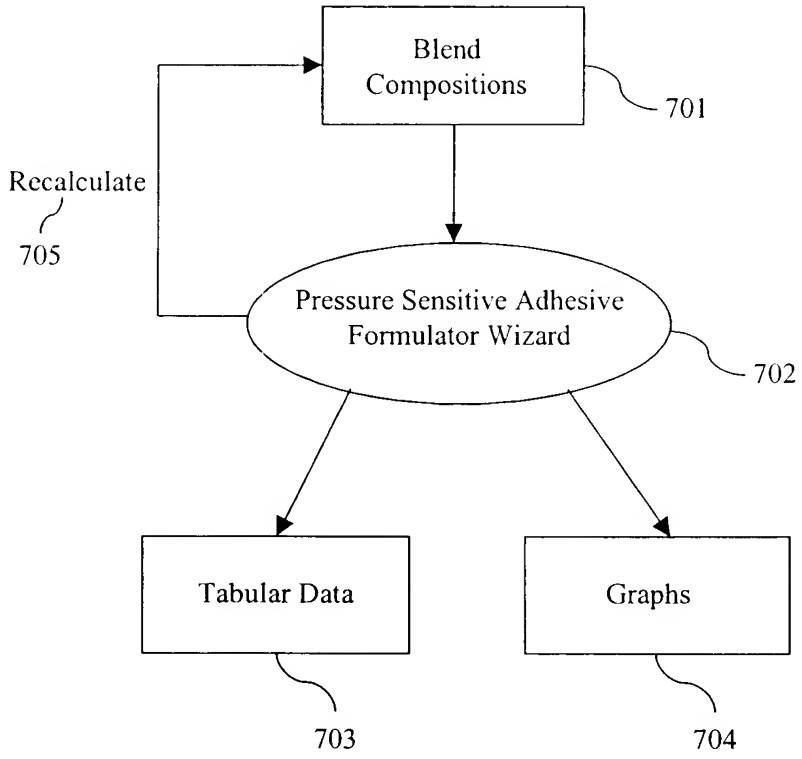

Blend Compositions
701
Recalculate
705
Pressure Sensitive Adhesive Formulator Wizard
702
Tabular Data
Graphs
703
704

FIGURE 7A

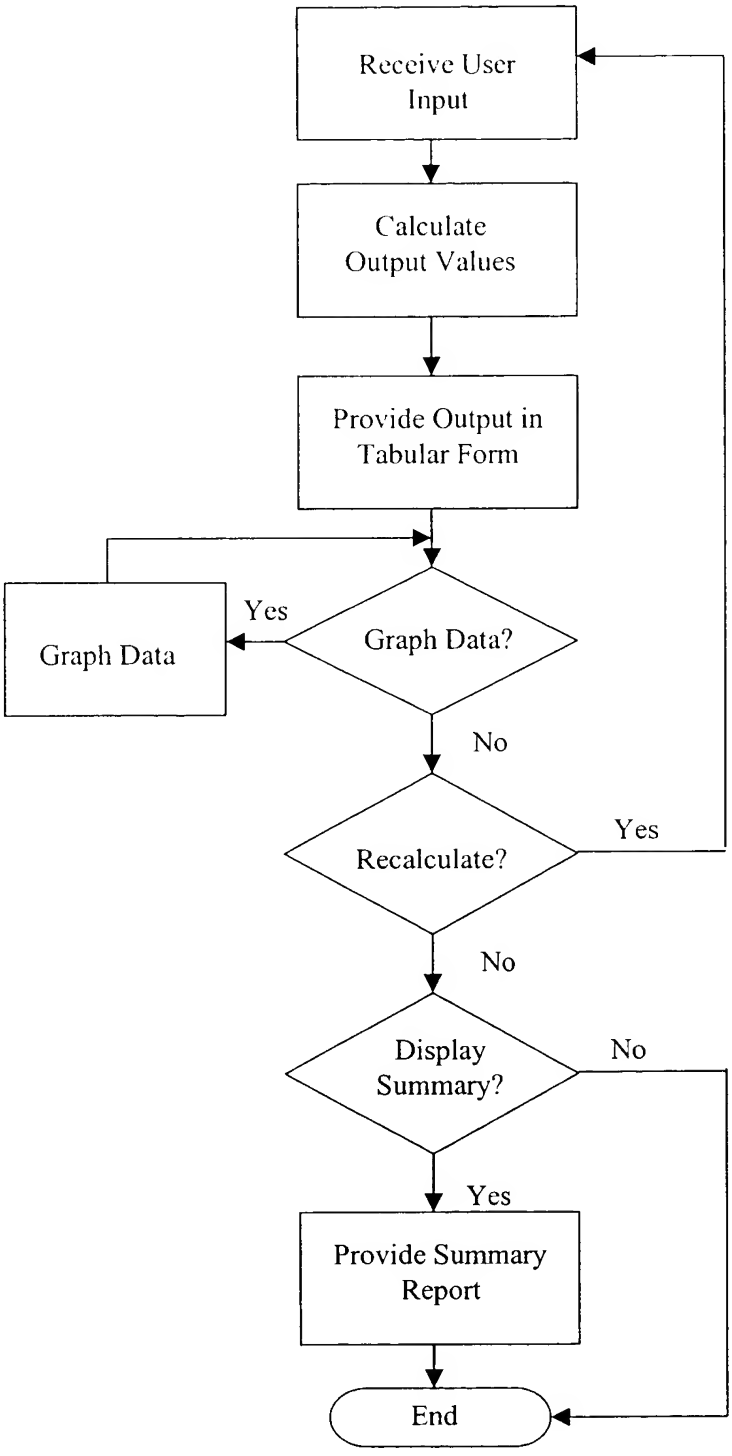
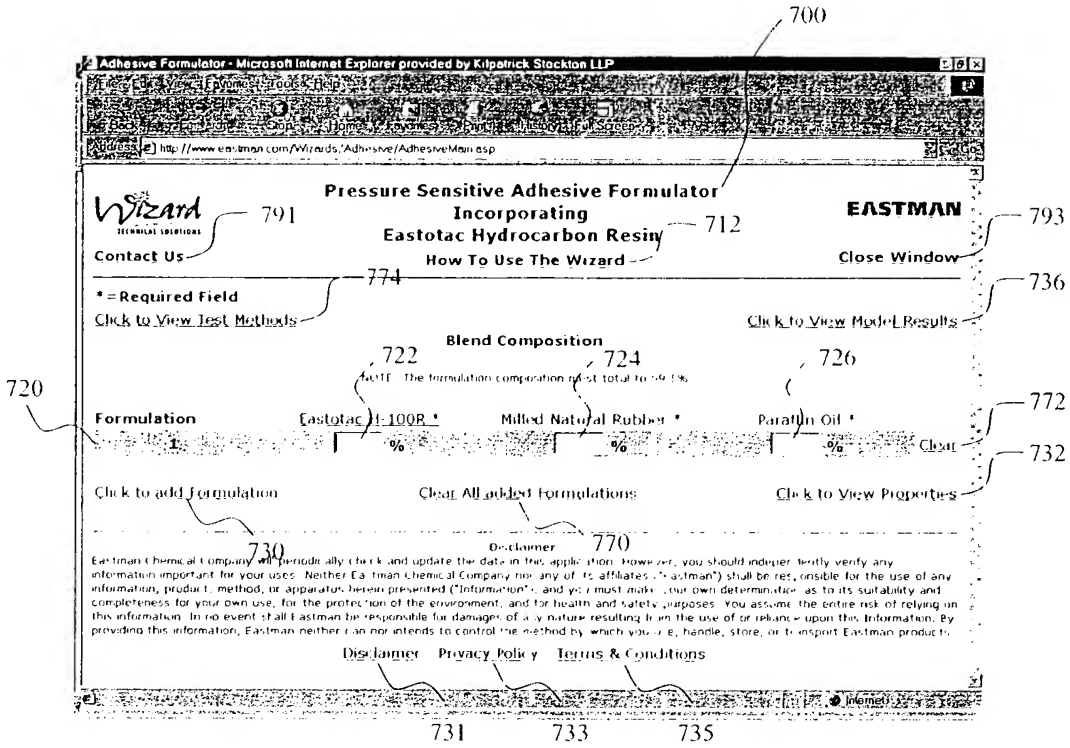

Receive User Input
Calculate Output Values
Provide Output in Tabular Form
Graph Data?
Yes
Graph Data
No
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 7B


700
Adhesive Formulator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Pressure Sensitive Adhesive Formulator
Incorporating
Eastotac Hydrocarbon Resin
712
EASTMAN
793
Wizard
791
Contact Us
How To Use The Wizard
Close Window
774
* = Required Field
Click to View Test Methods
736
Click to View Model Results
Blend Composition
722
724
726
720
Formulation
Eastotac H-100R *
Milled Natural Rubber *
Paraffin Oil *
772
Clear
732
Click to add Formulation
Clear All added Formulations
Click to View Properties
730
770
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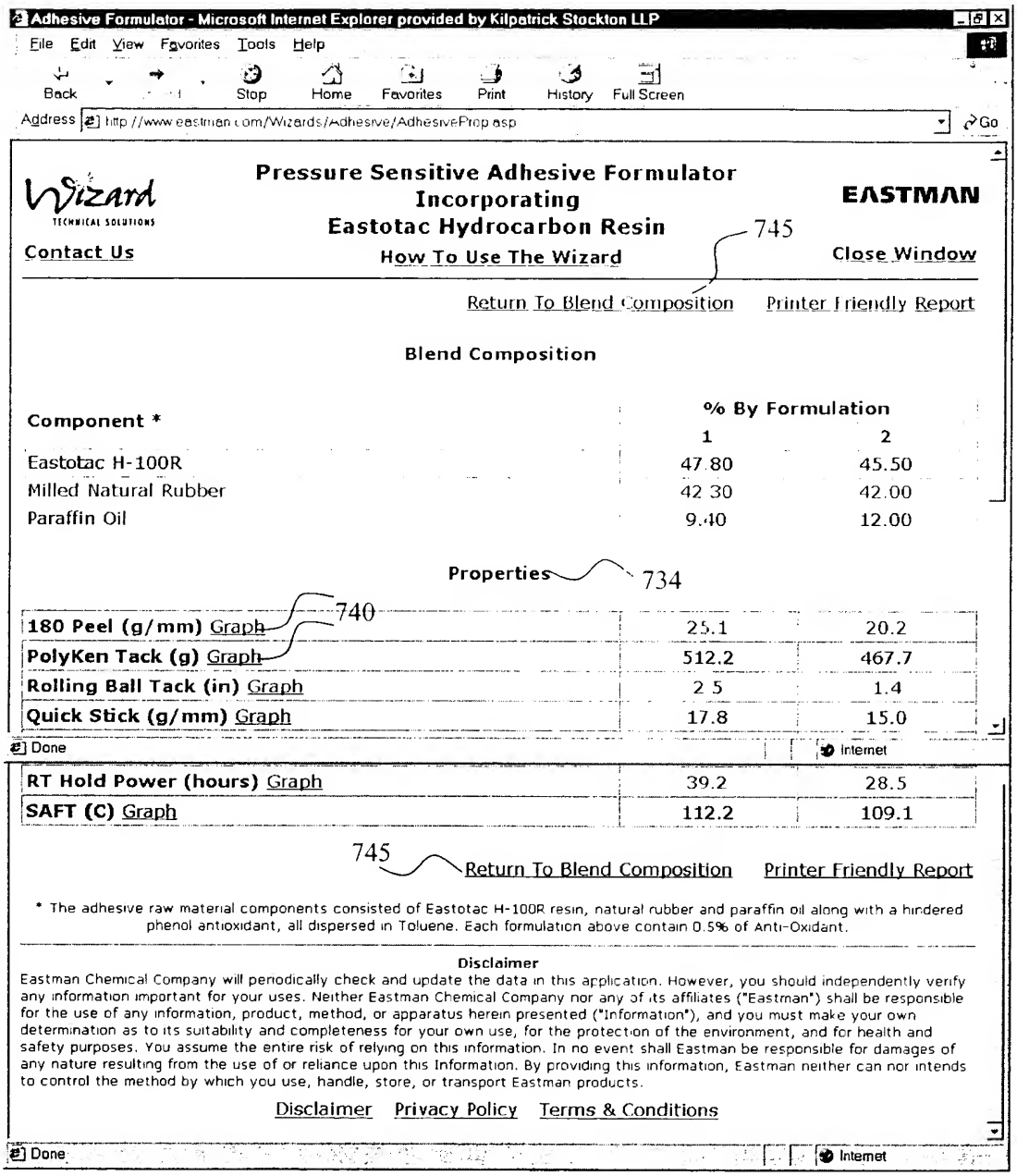
731
733
735

FIGURE 7C


Adhesive Formulator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
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Address http://www.eastman.com/Wizards/Adhesive/AdhesiveProp.asp
Go
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Eastotac Hydrocarbon Resin
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How To Use The Wizard
745
Close Window
Return To Blend Composition
Printer Friendly Report
Blend Composition
Component *
% By Formulation
1
2
Eastotac H-100R
47.80
45.50
Milled Natural Rubber
42.30
42.00
Paraffin Oil
9.40
12.00
Properties
734
740
180 Peel (g/mm) Graph
25.1
20.2
PolyKen Tack (g) Graph
512.2
467.7
Rolling Ball Tack (in) Graph
2.5
1.4
Quick Stick (g/mm) Graph
17.8
15.0
Done
Internet
RT Hold Power (hours) Graph
39.2
28.5
SAFT (C) Graph
112.2
109.1
745
Return To Blend Composition
Printer Friendly Report
* The adhesive raw material components consisted of Eastotac H-100R resin, natural rubber and paraffin oil along with a hindered phenol antioxidant, all dispersed in Toluene. Each formulation above contain 0.5% of Anti-Oxidant.
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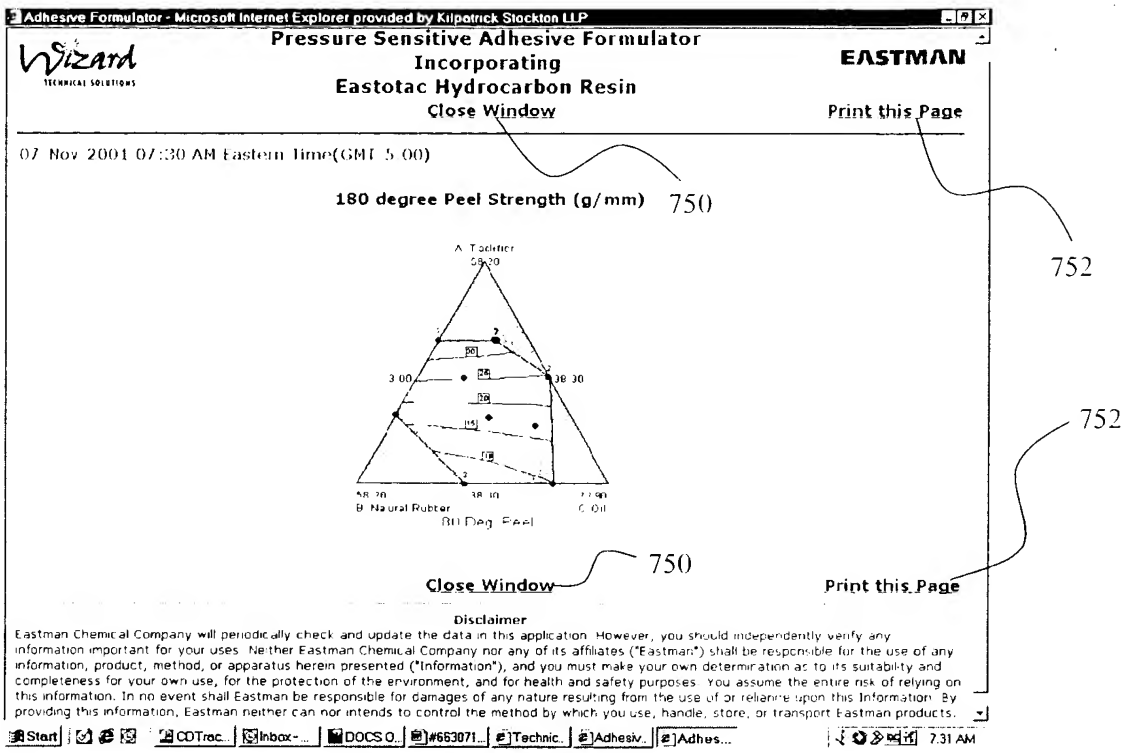
Done
Internet

FIGURE 7D


Adhesive Formulator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Wizard
TECHNICAL SOLUTIONS
Pressure Sensitive Adhesive Formulator
Incorporating
Eastotac Hydrocarbon Resin
EASTMAN
Close Window
Print this Page
07 Nov 2001 07:30 AM Eastern Time(GMT -5:00)
180 degree Peel Strength (g/mm)
750
752
752
750
B Natural Rubber
C Oil
Close Window
Print this Page
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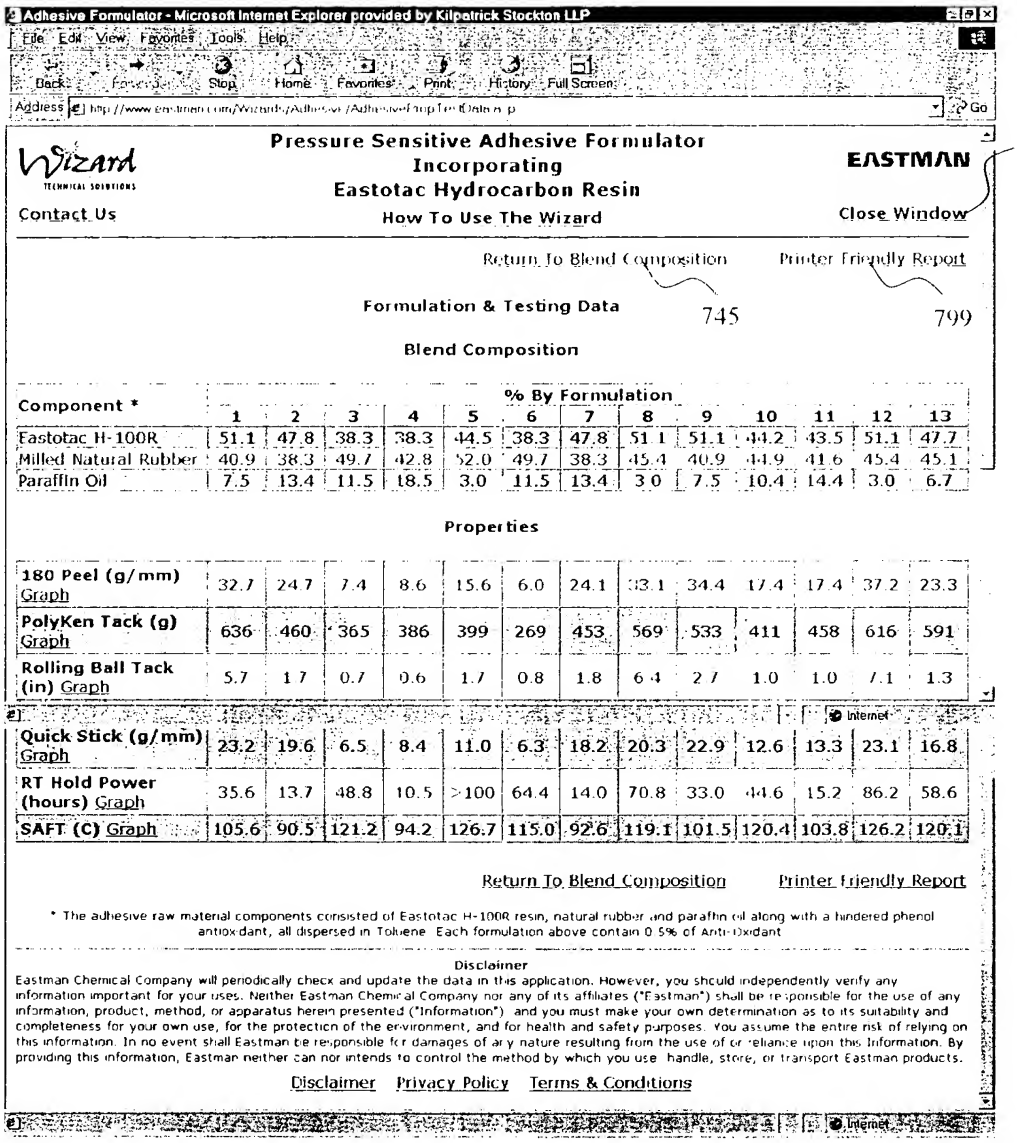
Start
7:31 AM

FIGURE 7E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Incorporating
Eastotac Hydrocarbon Resin
EASTMAN
793
Contact Us
How To Use The Wizard
Close Window
Return To Blend Composition
Printer Friendly Report
745
799
Formulation & Testing Data
Blend Composition
Component *
% By Formulation
1 2 3 4 5 6 7 8 9 10 11 12 13
Eastotac H-100R 51.1 47.8 38.3 38.3 44.5 38.3 47.8 51.1 51.1 44.2 43.5 51.1 47.7
Milled Natural Rubber 40.9 38.3 49.7 42.8 52.0 49.7 38.3 45.4 40.9 44.9 41.6 45.4 45.1
Paraffin Oil 7.5 13.4 11.5 18.5 3.0 11.5 13.4 3.0 7.5 10.4 14.4 3.0 6.7
Properties
180 Peel (g/mm) Graph 32.7 24.7 7.4 8.6 15.6 6.0 24.1 33.1 34.4 17.4 17.4 37.2 23.3
PolyKen Tack (g) Graph 636 460 365 386 399 269 453 569 533 411 458 616 591
Rolling Ball Tack (in) Graph 5.7 1.7 0.7 0.6 1.7 0.8 1.8 6.4 2.7 1.0 1.0 1.1 1.3
Internet
Quick Stick (g/mm) Graph 23.2 19.6 6.5 8.4 11.0 6.3 18.2 20.3 22.9 12.6 13.3 23.1 16.8
RT Hold Power (hours) Graph 35.6 13.7 48.8 10.5 >100 64.4 14.0 70.8 33.0 44.6 15.2 86.2 58.6
SAFT (C) Graph 105.6 90.5 121.2 94.2 126.7 115.0 92.6 119.1 101.5 120.4 103.8 126.2 120.1
Return To Blend Composition
Printer Friendly Report
* The adhesive raw material components consisted of Eastotac H-100R resin, natural rubber and paraffin oil along with a hindered phenol antioxidant, all dispersed in Toluene. Each formulation above contain 0.5% of Anti-Oxidant
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FIGURE 7F

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Wizard TECHNICAL SOLUTIONS

Pressure Sensitive Adhesive Formulator
Incorporating
Eastotac Hydrocarbon Resin

EASTMAN

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06 Nov 2001 8:00 PM Eastern Time (GMT -5:00)

793

752

Formulation & Testing Data

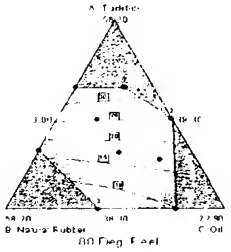
Blend Composition

Component *	% By Formulation												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Eastotac H-100R	51.1	47.8	38.5	38.3	44.5	38.3	47.8	51.1	51.1	44.2	43.5	51.1	47.7
Milled Natural Rubber	40.9	38.3	49.7	42.8	52.0	49.7	48.3	45.4	40.9	44.9	41.6	45.4	45.1
Paraflin Oil	7.5	13.4	11.5	18.5	3.0	11.5	13.4	3.0	7.5	10.4	14.4	3.0	6.7

Properties

180 Peel(g/mm)	32.7	24.7	7.4	8.6	15.6	6.0	24.1	33.1	34.4	17.4	17.4	37.2	23.3
PolyKen Tack (g)	636	460	365	386	399	269	455	569	533	411	458	616	591
Rolling Ball Tack (in)	5.7	1.7	0.7	0.6	1.7	0.8	1.8	6.4	2.7	1.0	1.0	7.1	1.3
Quick Stick (g/mm)	23.2	19.6	6.5	8.4	11.0	6.3	18.2	20.3	22.9	12.6	13.3	23.1	16.8
RT Hold Power (hours)	35.6	13.7	48.8	10.5	>100	64.4	14.0	70.8	33.0	44.6	15.2	86.2	58.6
SAFT (C)	105.6	90.5	121.2	94.2	126.7	115.0	92.6	119.1	101.5	120.4	103.8	126.2	120.1

180 Peel(g/mm)



PolyKen Tack (g)

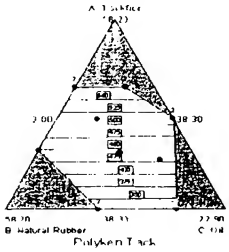


FIGURE 7G

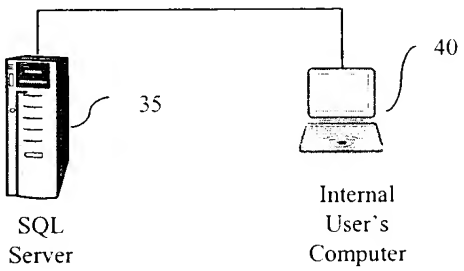


FIG. 8

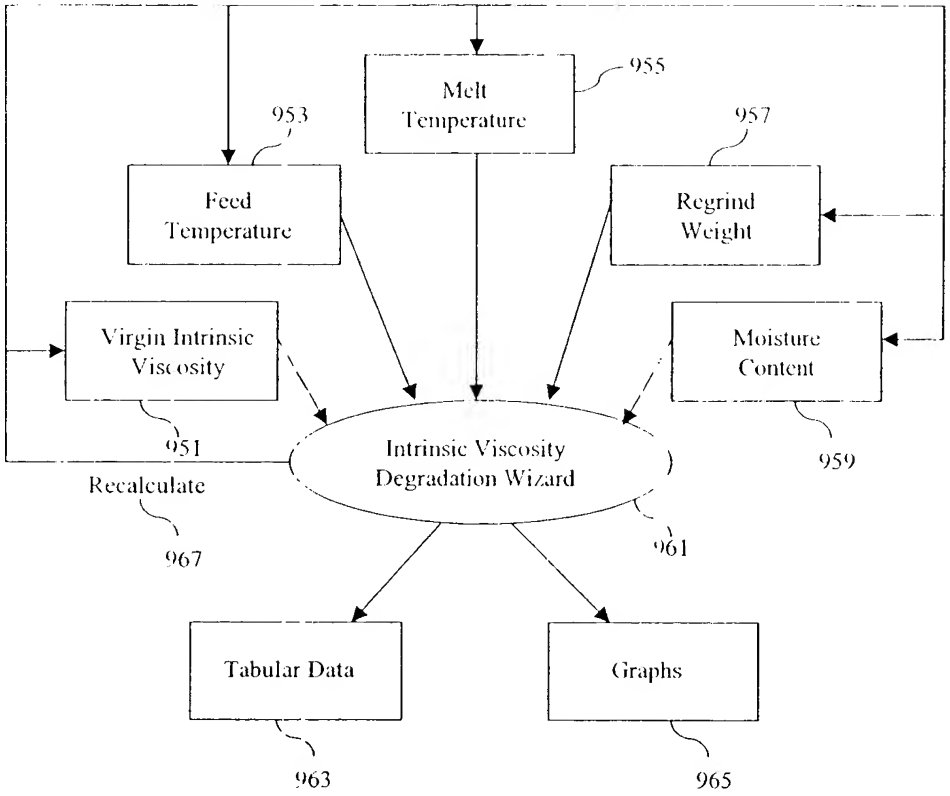

Melt Temperature
955
953
957
Feed Temperature
Regrind Weight
Virgin Intrinsic Viscosity
Moisture Content
951
959
Recalculate
Intrinsic Viscosity Degradation Wizard
967
961
Tabular Data
Graphs
963
965

FIGURE 9A

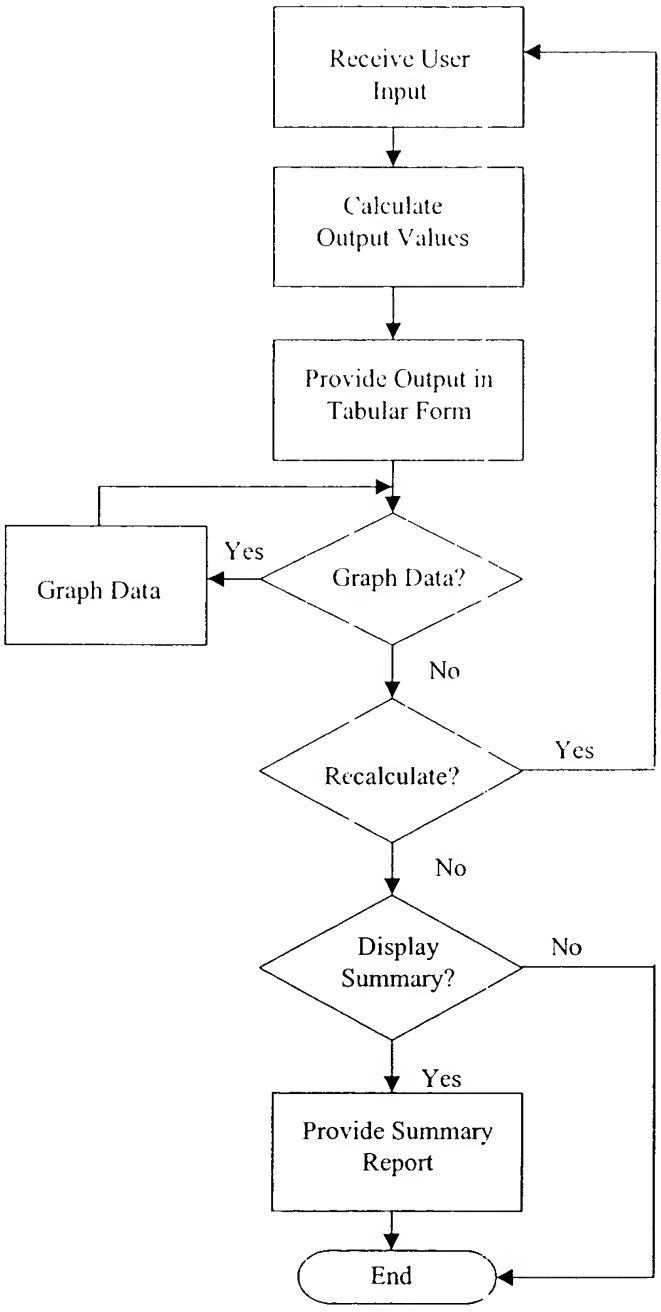
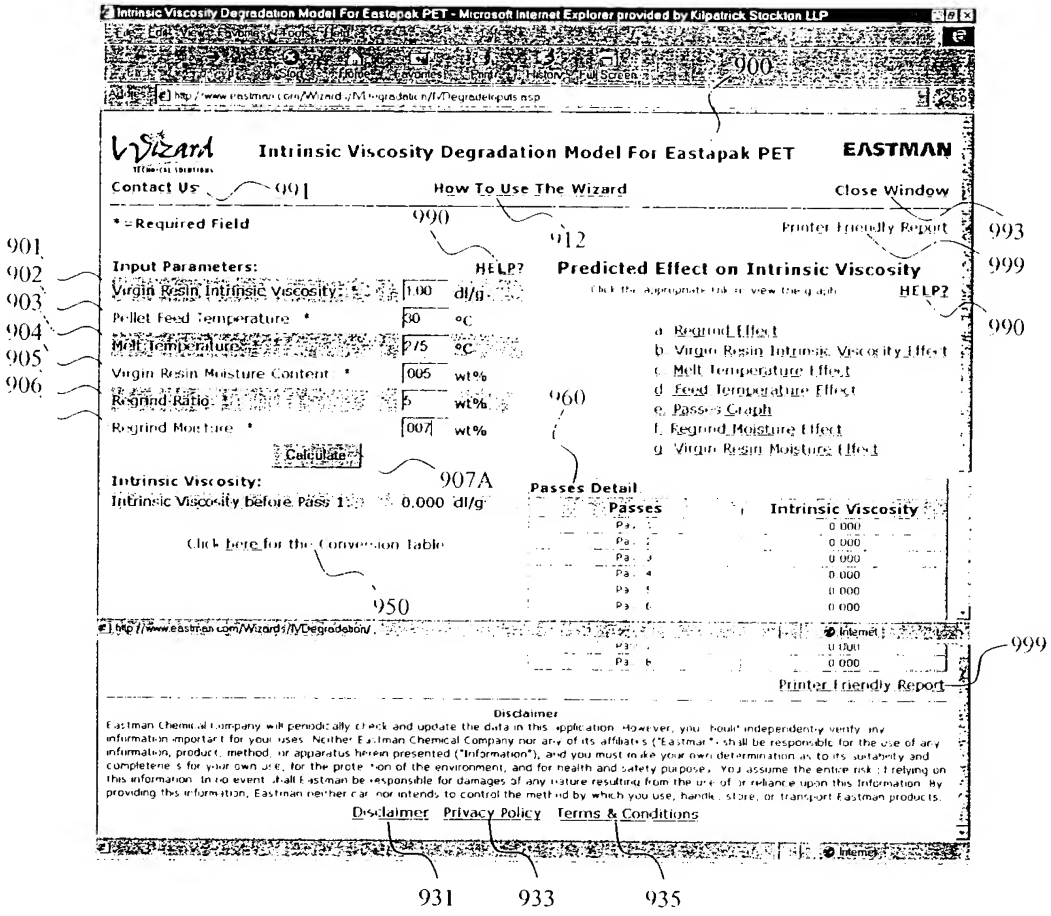

Receive User Input
Calculate Output Values
Provide Output in Tabular Form
Graph Data?
Yes
Graph Data
No
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 9B


Intrinsic Viscosity Degradation Model For Eastapak PET - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
900
Intrinsic Viscosity Degradation Model For Eastapak PET
EASTMAN
Contact Us
001
How To Use The Wizard
912
Close Window
990
Printer Friendly Report
993
999
* = Required Field
HELP?
Input Parameters:
Virgin Resin Intrinsic Viscosity: * 1.00 dl/g
Pellet Feed Temperature * 30 °C
Melt Temperature * 275 °C
Virgin Resin Moisture Content * 005 wt%
Regrind Ratio * 5 wt%
Regrind Moisture * 007 wt%
Calculate
907A
Predicted Effect on Intrinsic Viscosity
HELP?
990
a. Regrind Effect
b. Virgin Resin Intrinsic Viscosity Effect
c. Melt Temperature Effect
d. Feed Temperature Effect
e. Passes Graph
f. Regrind Moisture Effect
g. Virgin Resin Moisture Effect
960
Intrinsic Viscosity:
Intrinsic Viscosity Before Pass 1: 0.000 dl/g
Passes Detail
Passes
Intrinsic Viscosity
Click here for the Conversion Table
950
999
Printer Friendly Report
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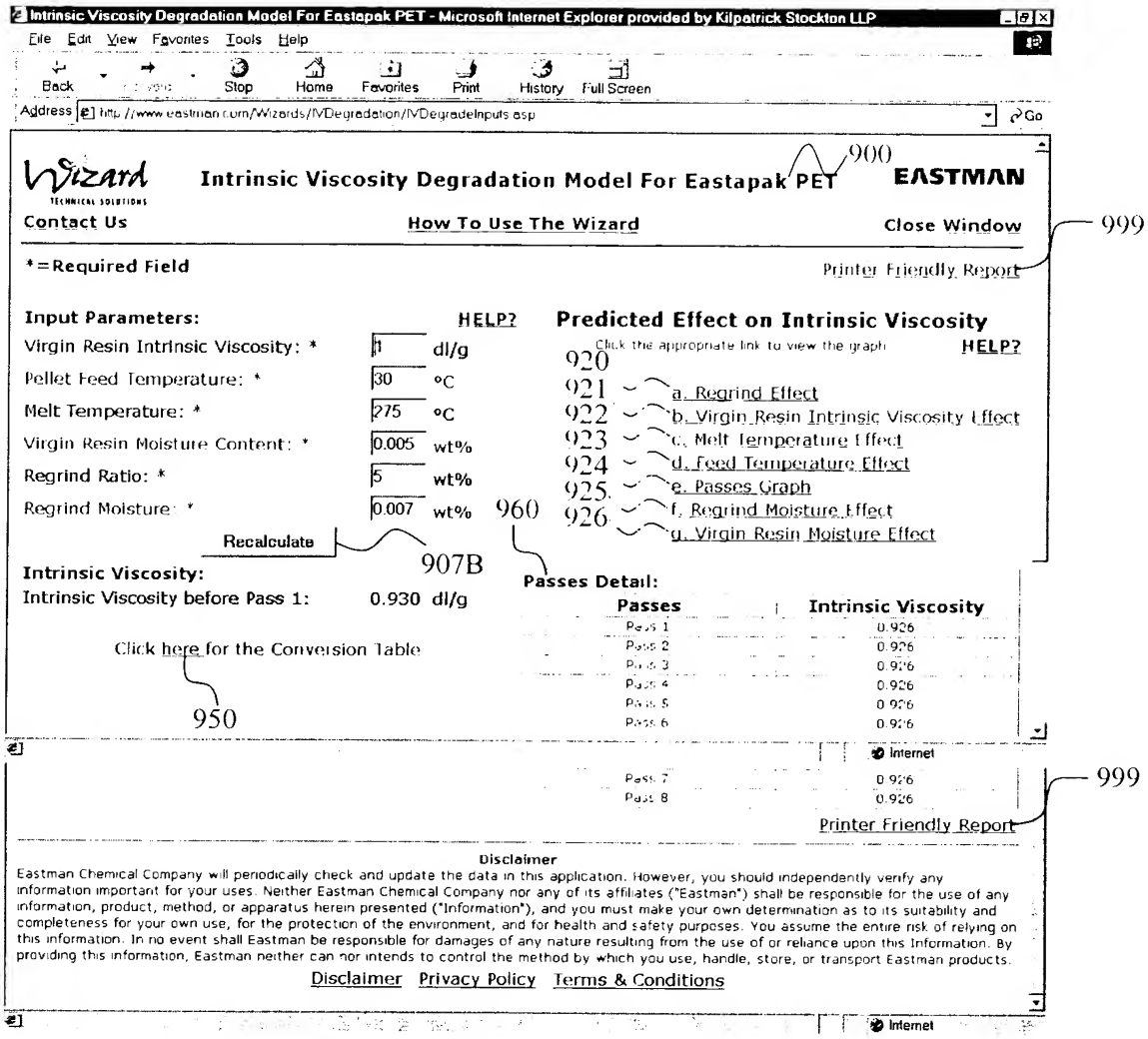
931
933
935

FIGURE 9C


Intrinsic Viscosity Degradation Model For Eastapak PET - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/IVDegradation/IVDegradeInputs.asp
Go
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Intrinsic Viscosity Degradation Model For Eastapak PET
900
EASTMAN
Contact Us
How To Use The Wizard
Close Window
999
*=Required Field
Printer Friendly Report
Input Parameters:
HELP?
Virgin Resin Intrinsic Viscosity: * 1 dl/g
Pellet Feed Temperature: * 30 °C
Melt Temperature: * 275 °C
Virgin Resin Moisture Content: * 0.005 wt%
Regrind Ratio: * 5 wt%
Regrind Moisture: * 0.007 wt%
Recalculate
907B
Intrinsic Viscosity:
Intrinsic Viscosity before Pass 1: 0.930 dl/g
Click here for the Conversion Table
950
Predicted Effect on Intrinsic Viscosity
Click the appropriate link to view the graph
HELP?
920
921 a. Regrind Effect
922 b. Virgin Resin Intrinsic Viscosity Effect
923 c. Melt Temperature Effect
924 d. Feed Temperature Effect
925 e. Passes Graph
926 f. Regrind Moisture Effect
g. Virgin Resin Moisture Effect
960
Passes Detail:
Passes
Intrinsic Viscosity
Pass 1 0.926
Pass 2 0.926
Pass 3 0.926
Pass 4 0.926
Pass 5 0.926
Pass 6 0.926
Internet
Pass 7 0.926
Pass 8 0.926
999
Printer Friendly Report
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FIGURE 9D

Intrinsic Viscosity Degradation Model For Eastapak PET - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP

Wizard TECHNICAL SOLUTIONS

Intrinsic Viscosity Degradation Model For Eastapak PET

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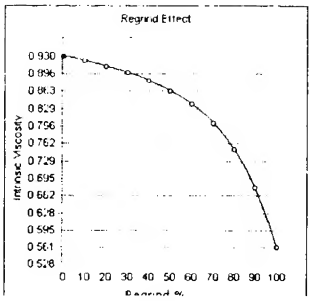
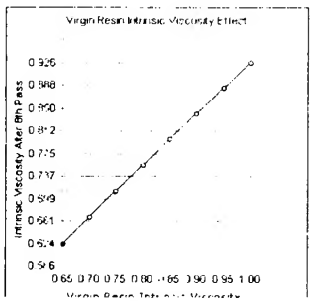
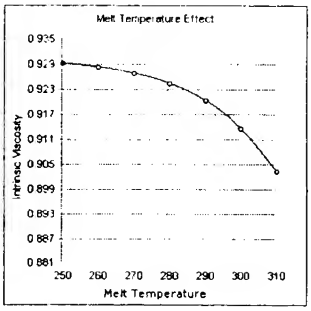
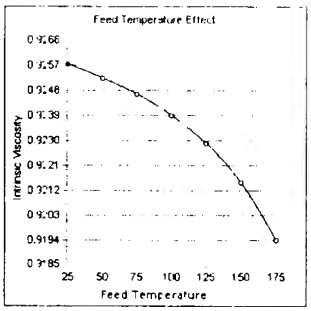
06 Nov 2001 7:15 PM Eastern Time(GMT -5:00)

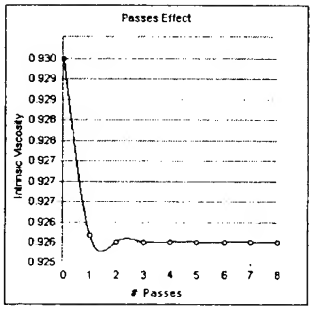
Input Parameters:		Passes Detail:	
Virgin Resin Intrinsic Viscosity:	1 dl/g	Pass 1	0.926
Pellet Feed Temperature:	30 °C	Pass 2	0.926
Melt Temperature:	275 °C	Pass 3	0.926
Virgin Resin Moisture Content:	0.005 wt%	Pass 4	0.926
Regrind Ratio:	5 wt%	Pass 5	0.926
Regrind Moisture:	0.007 wt%	Pass 6	0.926
		Pass 7	0.926
Final Intrinsic Viscosity:	0.930 dl/g	Pass 8	0.926











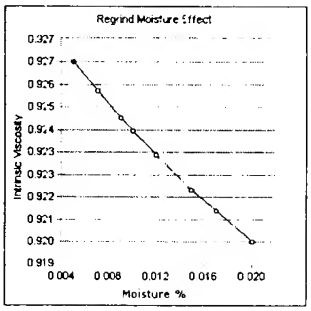


FIGURE 9E

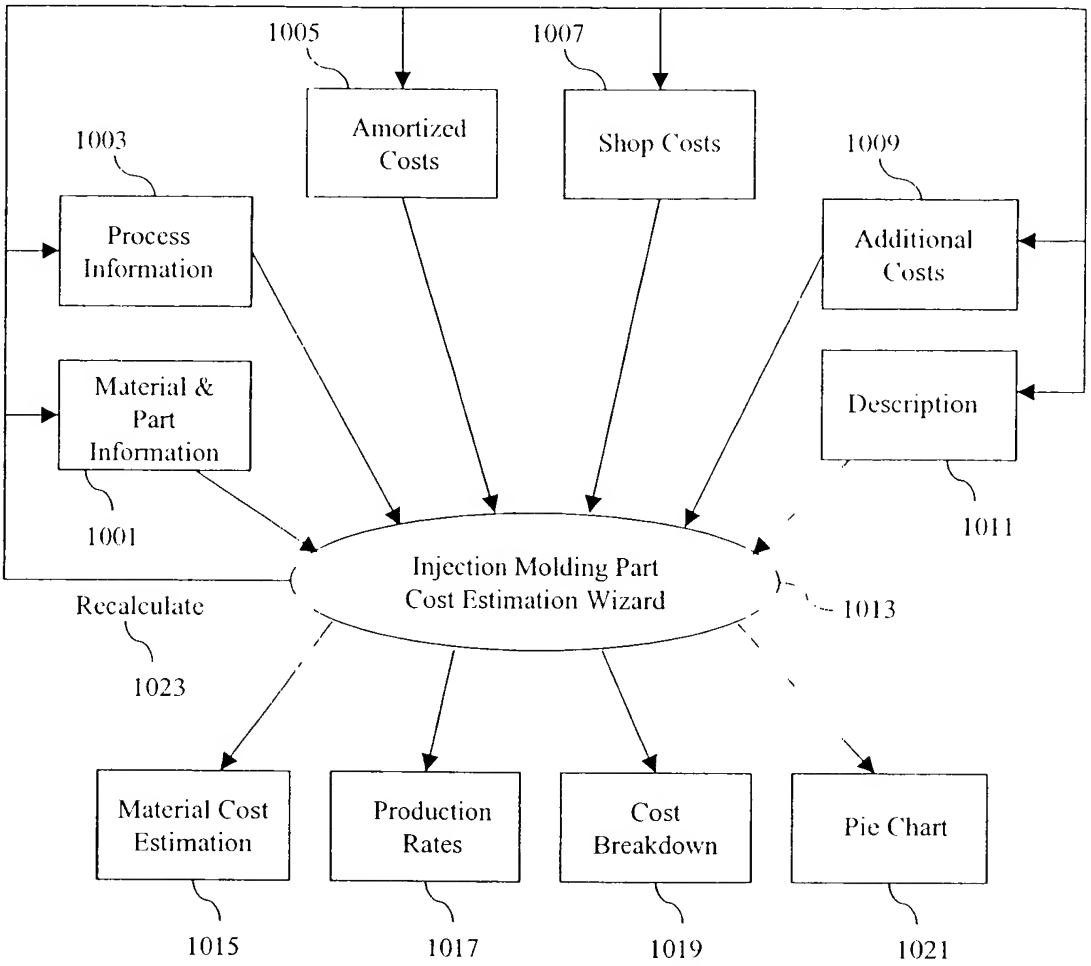

1005
1007
Amortized Costs
Shop Costs
1003
1009
Process Information
Additional Costs
Material & Part Information
Description
1001
1011
Injection Molding Part Cost Estimation Wizard
1013
Recalculate
1023
Material Cost Estimation
Production Rates
Cost Breakdown
Pie Chart
1015
1017
1019
1021

FIGURE 10A

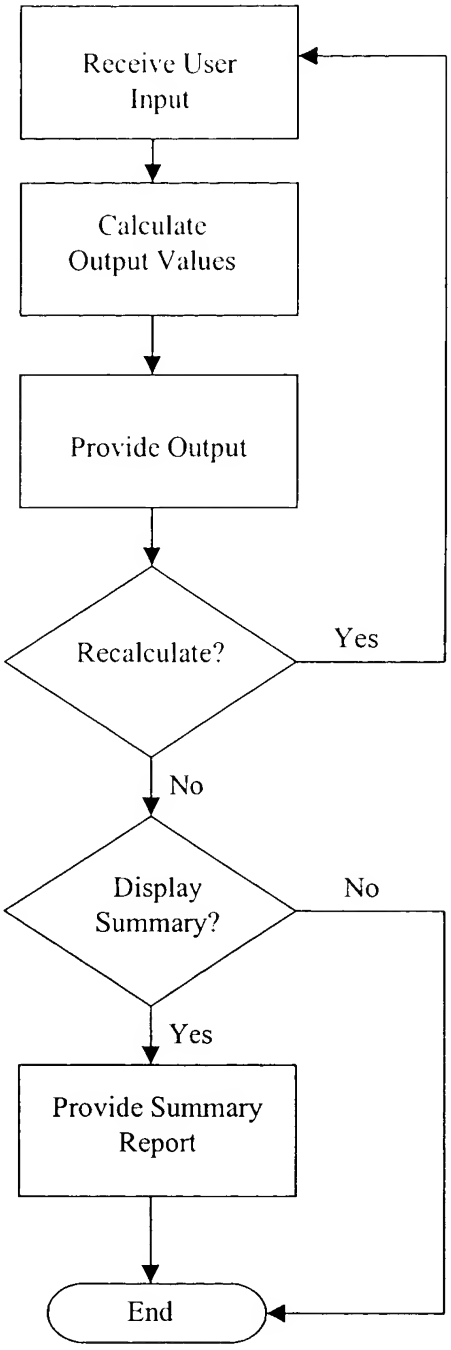

Receive User Input
Calculate Output Values
Provide Output
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 10B

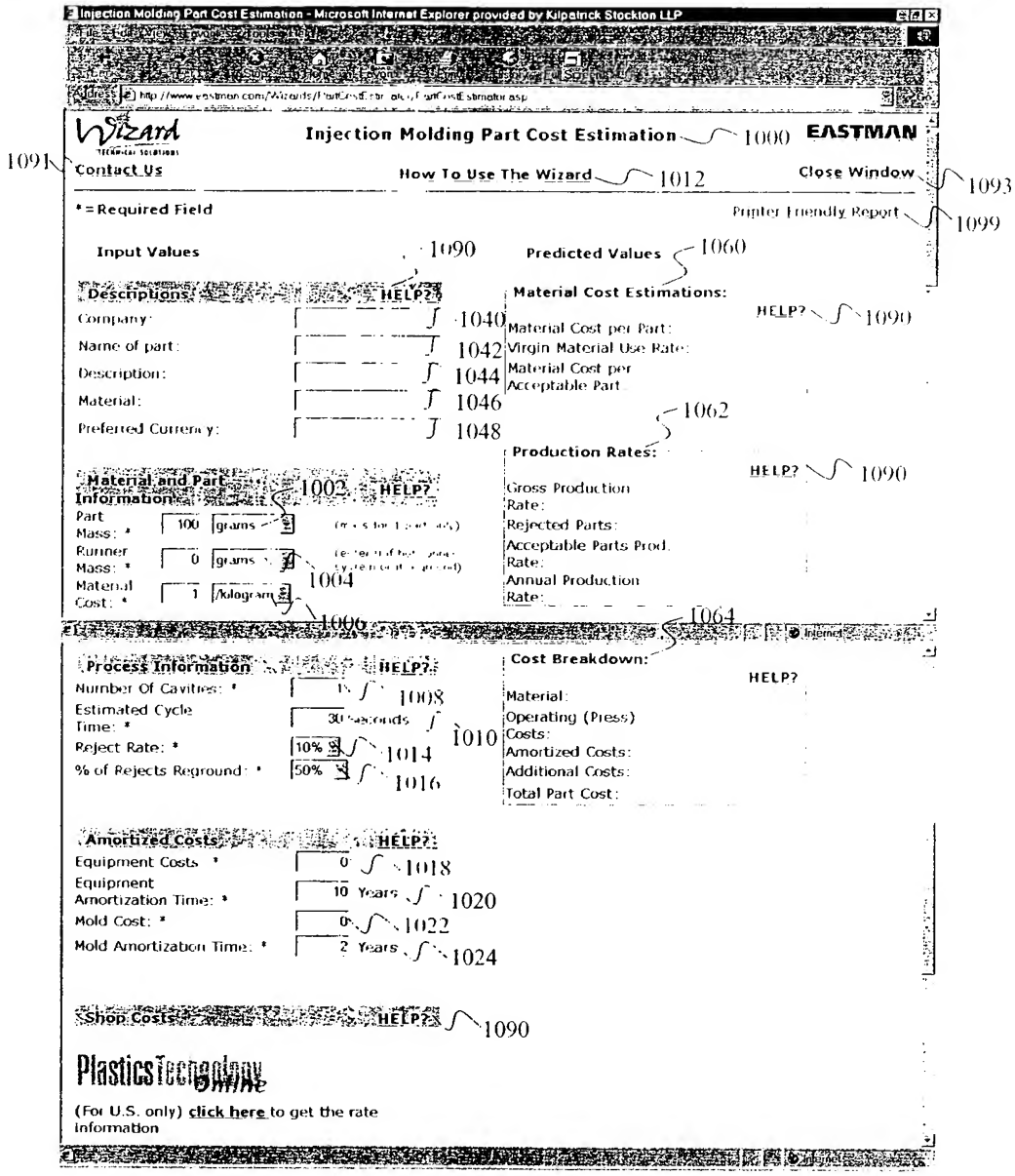
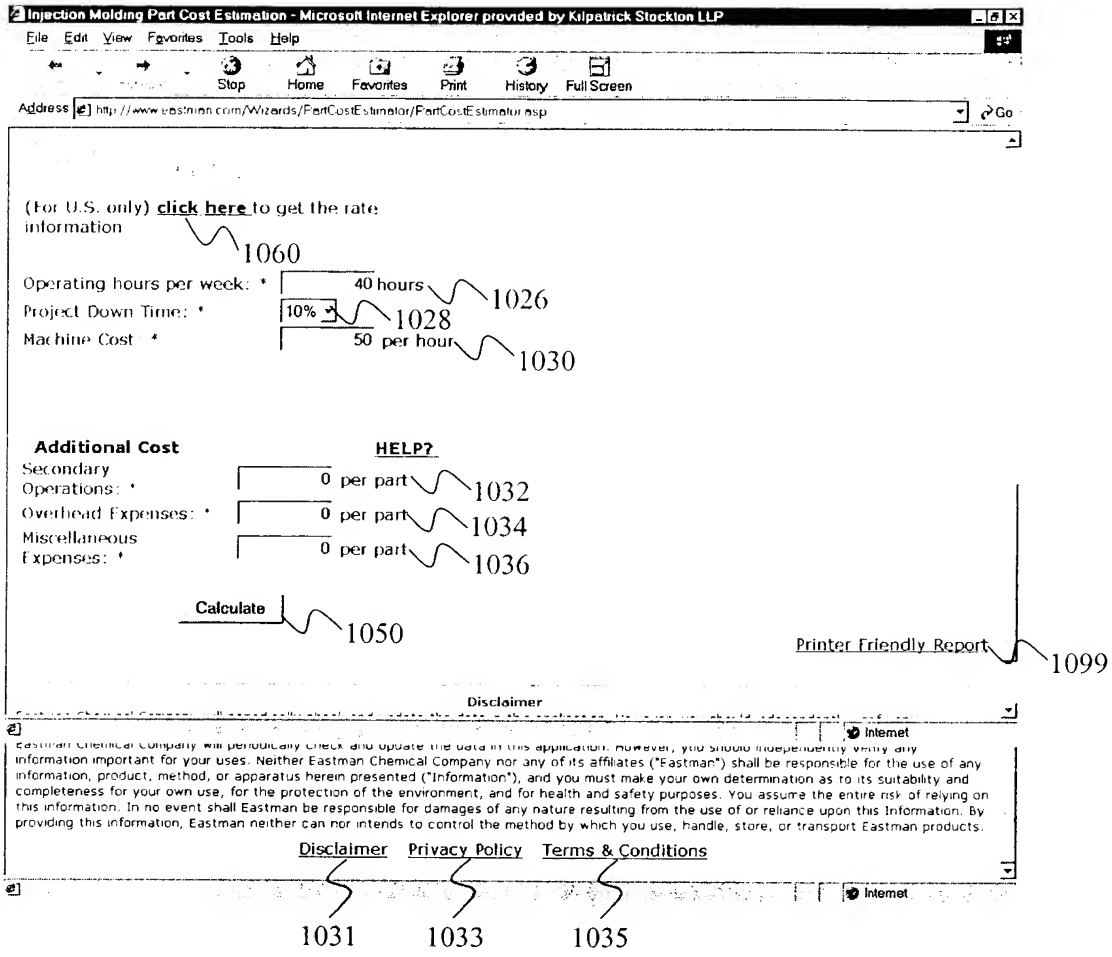

Injection Molding Part Cost Estimation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Wizard
Injection Molding Part Cost Estimation
1000
EASTMAN
1091
Contact Us
How To Use The Wizard
1012
Close Window
1093
*=Required Field
Printer Friendly Report
1099
Input Values
1090
Predicted Values
1060
Descriptions:
HELP?
Company:
1040
Name of part:
1042
Description:
1044
Material:
1046
Preferred Currency:
1048
Material Cost Estimations:
HELP?
1090
Material Cost per Part:
Virgin Material Use Rate:
Material Cost per Acceptable Part
1062
Production Rates:
HELP?
1090
Gross Production Rate:
Rejected Parts:
Acceptable Parts Prod. Rate:
Annual Production Rate:
Material and Part Information:
1002
HELP?
Part Mass: *
100
grams
Runner Mass: *
0
grams
1004
Material Cost: *
1
/kilogram
1006
1064
Process Information:
HELP?
Number Of Cavities: *
1
1008
Estimated Cycle Time: *
30
seconds
1010
Reject Rate: *
10%
1014
% of Rejects Reground: *
50%
1016
Cost Breakdown:
HELP?
Material:
Operating (Press) Costs:
Amortized Costs:
Additional Costs:
Total Part Cost:
Amortized Costs:
HELP?
Equipment Costs *
0
1018
Equipment Amortization Time: *
10
Years
1020
Mold Cost: *
0
1022
Mold Amortization Time: *
2
Years
1024
Shop Costs:
HELP?
1090
PlasticsTechnology Online
(For U.S. only) click here to get the rate information

FIGURE 10C


Injection Molding Part Cost Estimation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/PartCostEstimator/PartCostEstimator.asp
Go
(For U.S. only) click here to get the rate information
1060
Operating hours per week: * 40 hours
1026
Project Down Time: * 10%
1028
Machine Cost * 50 per hour
1030
Additional Cost
HELP?
Secondary Operations: * 0 per part
1032
Overhead Expenses: * 0 per part
1034
Miscellaneous Expenses: * 0 per part
1036
Calculate
1050
Printer Friendly Report
1099
Disclaimer
Internet
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Disclaimer Privacy Policy Terms & Conditions
1031
1033
1035
Internet

FIGURE 10D

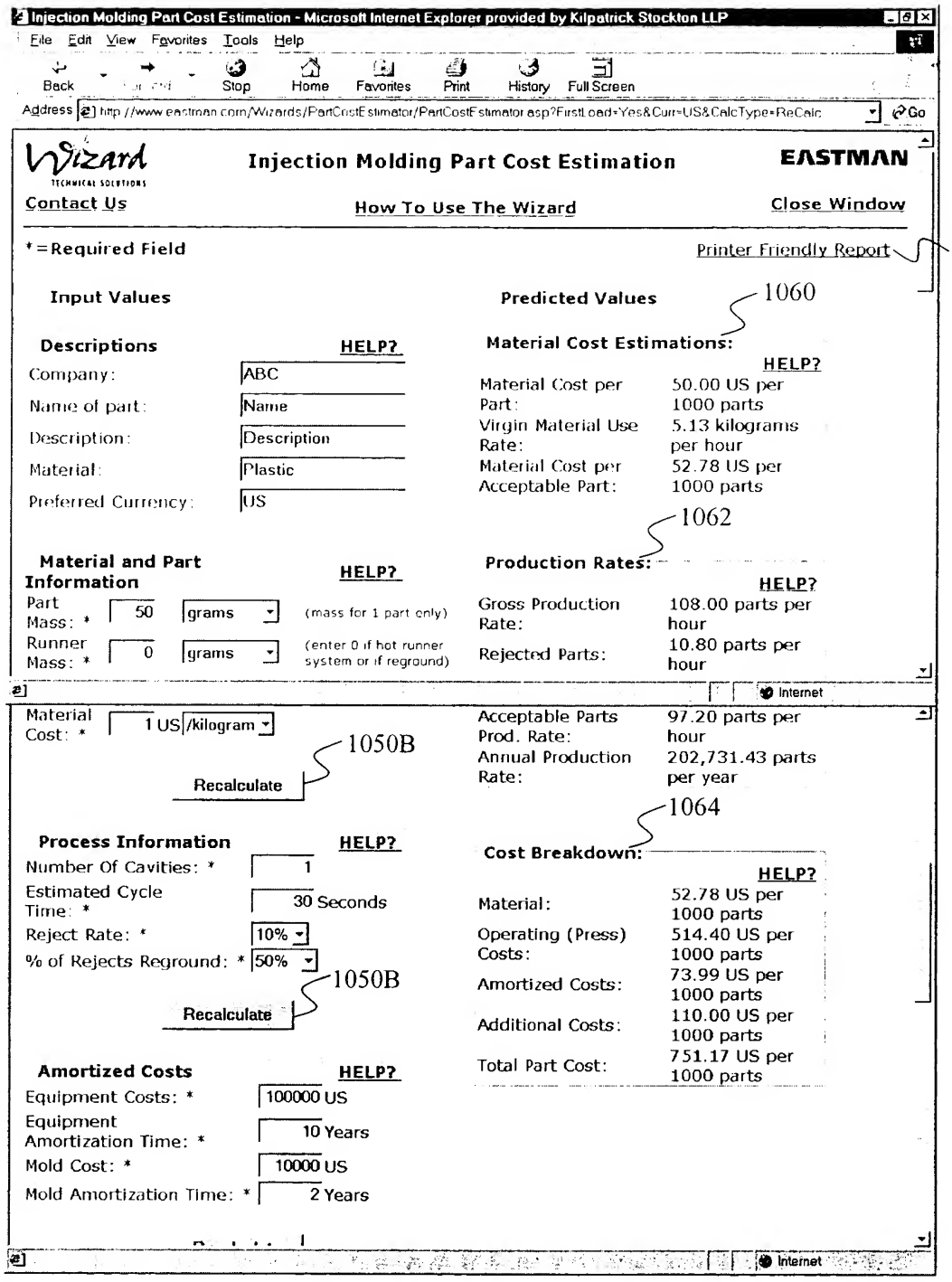

Injection Molding Part Cost Estimation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/PartCostEstimator/PartCostEstimator.asp?FirstLoad=Yes&Curr=US&CalcType=ReCalc
Go
Wizard TECHNICAL SOLUTIONS
Injection Molding Part Cost Estimation
EASTMAN
Contact Us
How To Use The Wizard
Close Window
*=Required Field
Printer Friendly Report
1099
Input Values
Predicted Values
1060
Descriptions
HELP?
Company: ABC
Name of part: Name
Description: Description
Material: Plastic
Preferred Currency: US
Material Cost Estimations:
HELP?
Material Cost per Part: 50.00 US per 1000 parts
Virgin Material Use Rate: 5.13 kilograms per hour
Material Cost per Acceptable Part: 52.78 US per 1000 parts
1062
Material and Part Information
HELP?
Part Mass: * 50 grams (mass for 1 part only)
Runner Mass: * 0 grams (enter 0 if hot runner system or if reground)
Production Rates:
HELP?
Gross Production Rate: 108.00 parts per hour
Rejected Parts: 10.80 parts per hour
Internet
Material Cost: * 1 US /kilogram
1050B
Recalculate
Acceptable Parts Prod. Rate: 97.20 parts per hour
Annual Production Rate: 202,731.43 parts per year
1064
Process Information
HELP?
Number Of Cavities: * 1
Estimated Cycle Time: * 30 Seconds
Reject Rate: * 10%
% of Rejects Reground: * 50%
1050B
Recalculate
Cost Breakdown:
HELP?
Material: 52.78 US per 1000 parts
Operating (Press) Costs: 514.40 US per 1000 parts
Amortized Costs: 73.99 US per 1000 parts
Additional Costs: 110.00 US per 1000 parts
Total Part Cost: 751.17 US per 1000 parts
Amortized Costs
HELP?
Equipment Costs: * 100000 US
Equipment Amortization Time: * 10 Years
Mold Cost: * 10000 US
Mold Amortization Time: * 2 Years
Internet

FIGURE 10E

Injection Molding Part Cost Estimation - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP

Wizard TECHNICAL SOLUTIONS

Injection Molding Part Cost Estimation

EASTMAN

Close Window 1093 Print this Page 1040

06 Nov 2001 7:28 PM Eastern Time(GMT 5:00)

Input Values

Descriptions

Company:	ABC
Name of part:	
Description:	Description
Material:	Plastic
Preferred Currency:	US

Material and Part Information

Part Mass:	50 grams
Runner Mass:	0 grams
Material Cost:	1 US per kilogram

Process Information

Number Of Cavities:	1
Estimated Cycle Time:	30 Seconds
Reject Rate:	10 %
% of Rejects Reground:	50 %

Amortized Costs

Equipment Costs:	100000 US
Equipment Amortization Time:	10 Years
Mold Cost:	10000 US
Mold Amortization Time:	2 Years

Shop Costs

Operating hours per week:	40
Project Down Time:	10 %
Machine Cost:	50 US per hour

Additional Cost

Secondary Operations:	2 US per part
Overhead Expenses:	4 US per part
Miscellaneous Expenses:	5 US per part

Predicted Values

Material Cost Estimations:

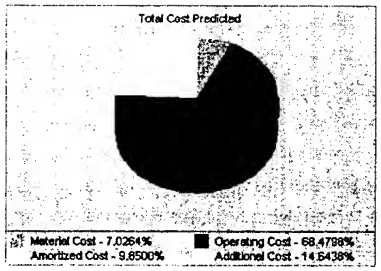
Material Cost per Part:	50.00 US per 1000 parts
Virgin Material Use Rate:	5.13 kilograms per hour
Material Cost per Acceptable Part:	52.78 US per 1000 parts

Production Rates:

Gross Production Rate:	108.00 parts per hour
Rejected Parts:	10.80 parts per hour
Acceptable Parts Prod. Rate:	97.20 parts per hour
Annual Production Rate:	202,731.43 per 1000 parts

Cost Breakdown:

Material:	52.78 US per 1000 parts
Operating (Press) Costs:	514.40 US per 1000 parts
Amortized Costs:	73.99 US per 1000 parts
Additional Costs:	110.00 US per 1000 parts
Total Part Cost:	751.17 US per 1000 parts



1093 Close Window Print this Page 1040

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FIGURE 10F

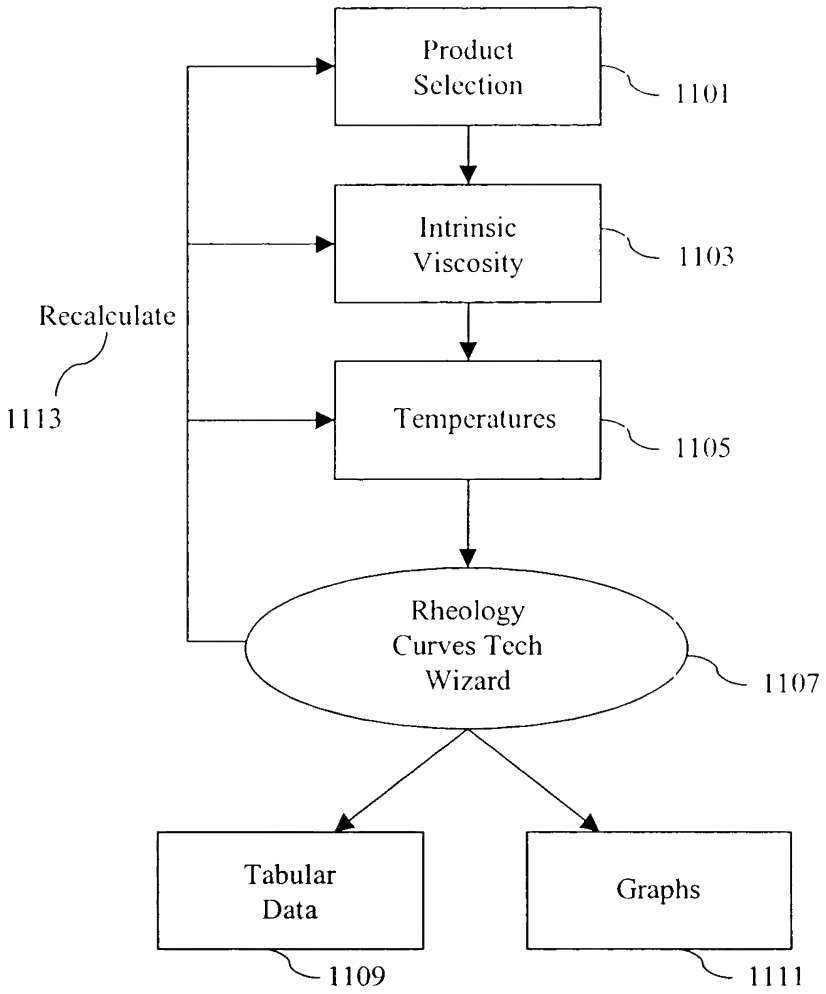

Product Selection
1101
Intrinsic Viscosity
1103
Recalculate
1113
Temperatures
1105
Rheology Curves Tech Wizard
1107
Tabular Data
1109
Graphs
1111

FIGURE 11A

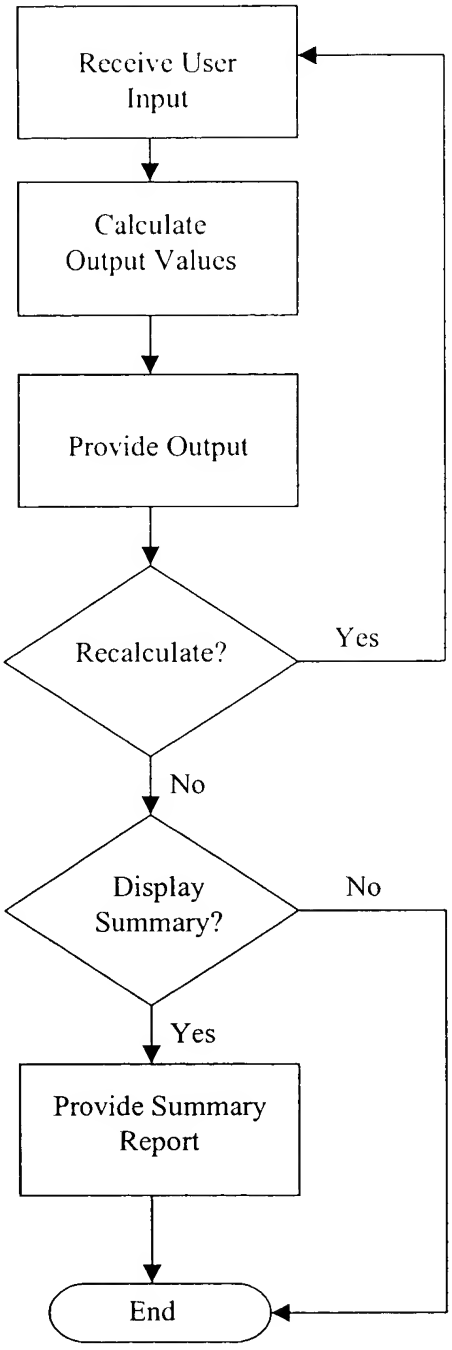
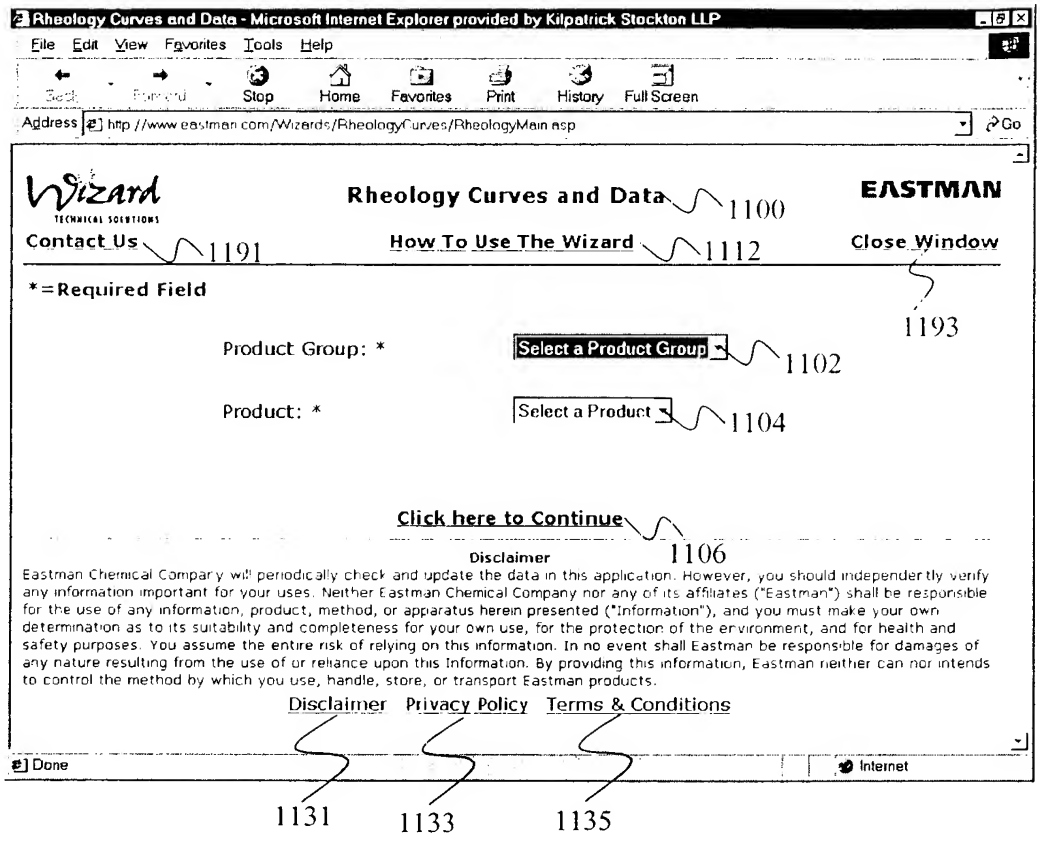

Receive User Input
Calculate Output Values
Provide Output
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 11B


Rheology Curves and Data - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Forward Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/RheologyCurves/RheologyMain.asp
Go
Wizard
TECHNICAL SOLUTIONS
Rheology Curves and Data
1100
EASTMAN
Contact Us
1191
How To Use The Wizard
1112
Close Window
1193
*=Required Field
Product Group: *
Select a Product Group
1102
Product: *
Select a Product
1104
Click here to Continue
1106
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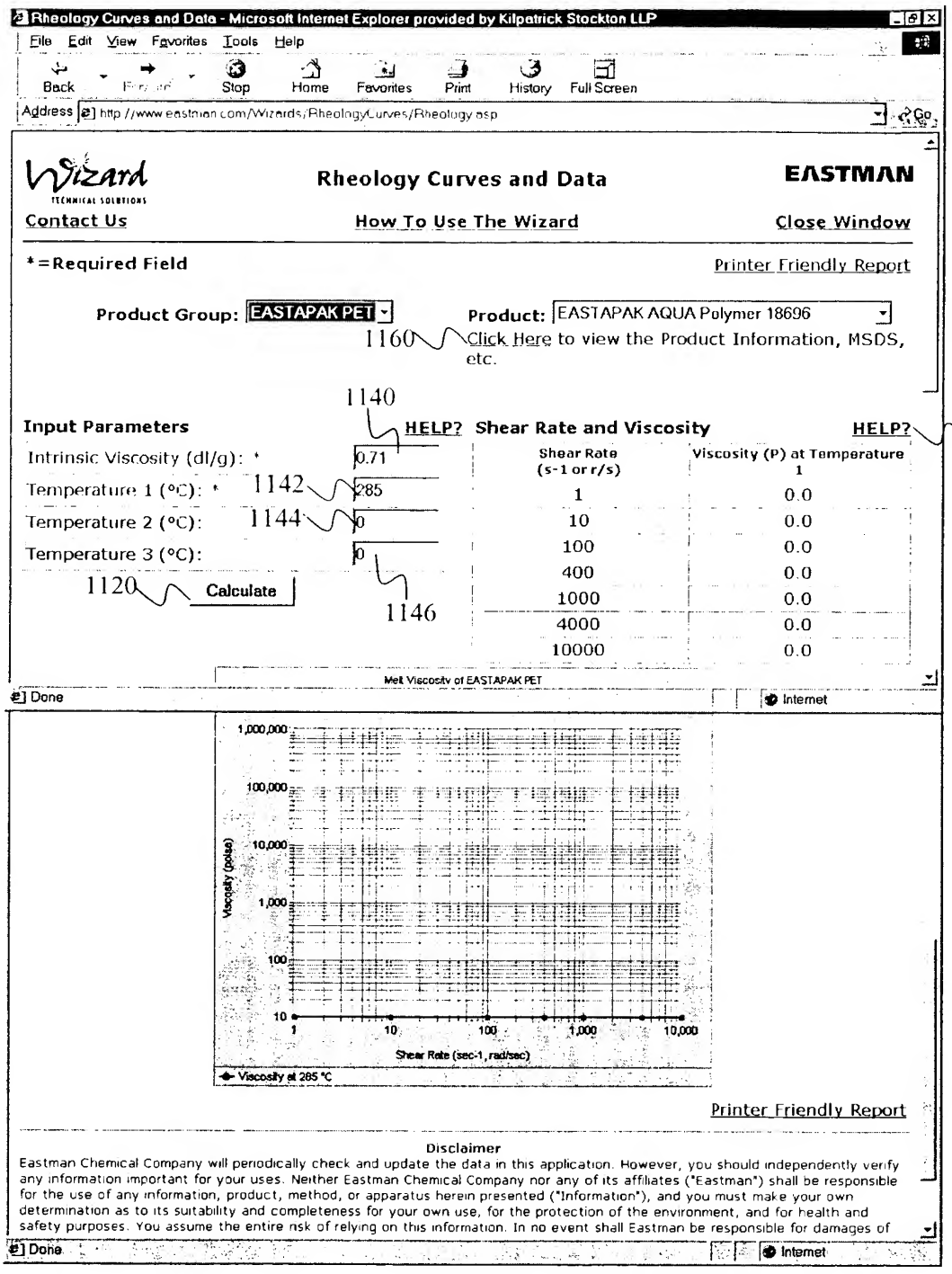
Terms & Conditions
1131
1133
1135
Done
Internet

FIGURE 11C


Rheology Curves and Data - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/RheologyCurves/Rheology.asp
Wizard TECHNICAL SOLUTIONS
Rheology Curves and Data
EASTMAN
Contact Us
How To Use The Wizard
Close Window
*=Required Field
Printer Friendly Report
Product Group: EASTAPAK PET
Product: EASTAPAK AQUA Polymer 18696
1160
Click Here to view the Product Information, MSDS, etc.
1140
Input Parameters
HELP?
Intrinsic Viscosity (dl/g): * 0.71
Temperature 1 (°C): * 1142 285
Temperature 2 (°C): 1144 0
Temperature 3 (°C): 0
1120 Calculate
1146
Shear Rate and Viscosity
HELP?
1190
Shear Rate (s-1 or r/s)
Viscosity (P) at Temperature 1
1 0.0
10 0.0
100 0.0
400 0.0
1000 0.0
4000 0.0
10000 0.0
Melt Viscosity of EASTAPAK PET
Done
Internet
1,000,000
100,000
10,000
1,000
100
10
Viscosity (poise)
1
10
100
1,000
10,000
Shear Rate (sec-1, rad/sec)
Viscosity at 285 °C
Printer Friendly Report
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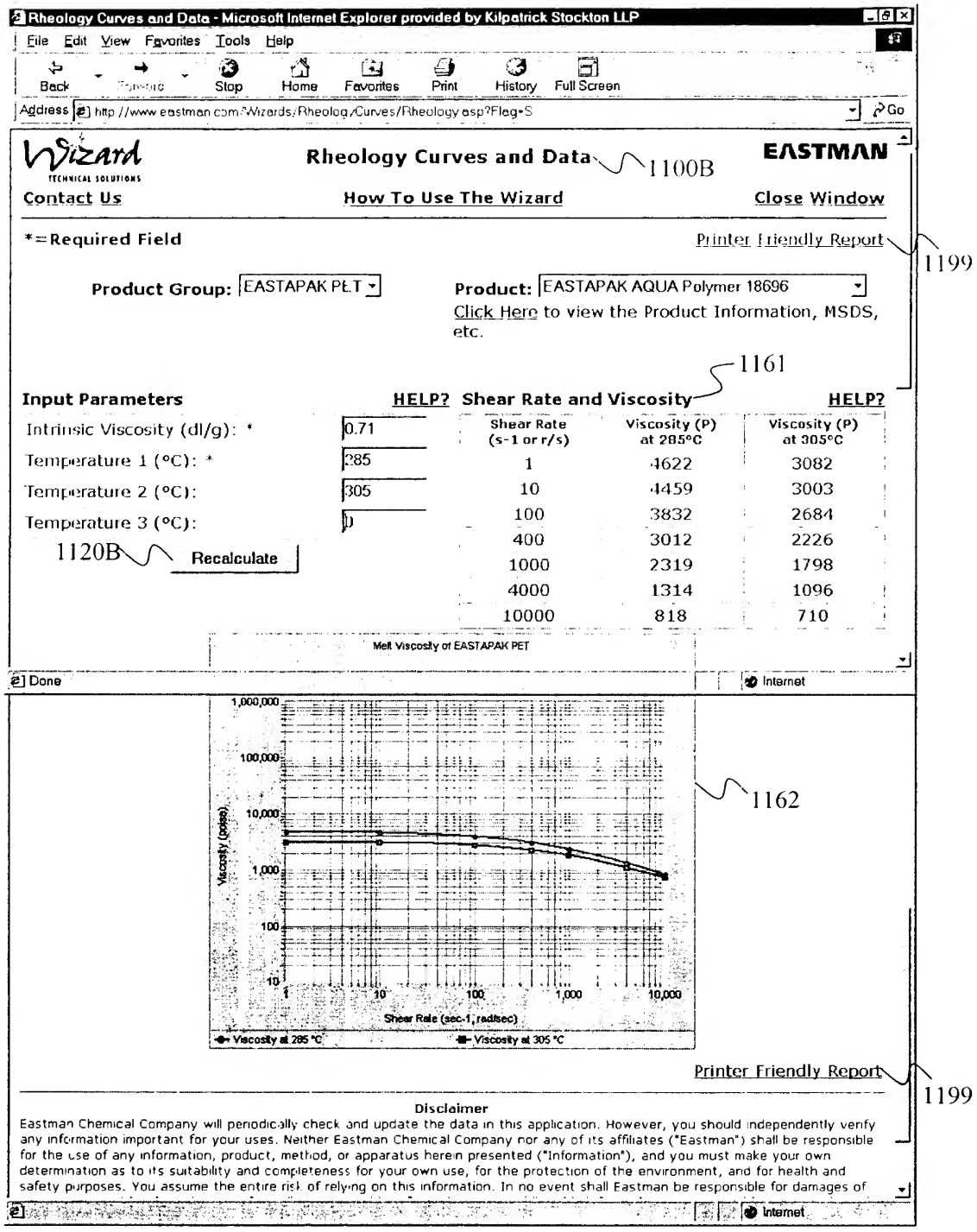
Done
Internet

FIGURE 11D


Rheology Curves and Data - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/Rheolog/Curves/Rheology.asp?Flag=S
Go
Wizard TECHNICAL SOLUTIONS
Rheology Curves and Data
1100B
EASTMAN
Contact Us
How To Use The Wizard
Close Window
*=Required Field
Printer Friendly Report
1199
Product Group: EASTAPAK PET
Product: EASTAPAK AQUA Polymer 18696
Click Here to view the Product Information, MSDS, etc.
1161
Input Parameters
HELP?
Intrinsic Viscosity (dl/g): * 0.71
Temperature 1 (°C): * 285
Temperature 2 (°C): 305
Temperature 3 (°C): 0
1120B
Recalculate
Shear Rate and Viscosity
HELP?
Shear Rate (s-1 or r/s)
Viscosity (P) at 285°C
Viscosity (P) at 305°C
1 4622 3082
10 4459 3003
100 3832 2684
400 3012 2226
1000 2319 1798
4000 1314 1096
10000 818 710
Melt Viscosity of EASTAPAK PET
Viscosity (poise)
1,000,000
100,000
10,000
1,000
100
10
1
10
100
1,000
10,000
Shear Rate (sec-1, rad/sec)
Viscosity at 285 °C
Viscosity at 305 °C
1162
Printer Friendly Report
1199
Disclaimer
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Done
Internet

FIGURE 11E

Rheology Curves and Data - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP

Wizard TECHNICAL SOLUTIONS

Rheology Curves and Data

EASTMAN

Close Window 1193 Print this Page 1140

06-Nov-2001 7:34 PM Eastern Time(GMT-5:00)

EASTAPAK PET - EASTAPAK AQUA Polymer 18696

Input Parameters

Intrinsic Viscosity (dl/g):	0.71
Temperature 1 (°C):	285
Temperature 2 (°C):	305
Temperature 3 (°C):	0

Shear Rate and Viscosity

Shear Rate (s-1 or r/s)	Viscosity (P) at 285°C	Viscosity (P) at 305°C
1	4622	3082
10	4459	3003
100	3832	2684
400	3012	2226
1000	2319	1798
4000	1314	1096
10000	818	710

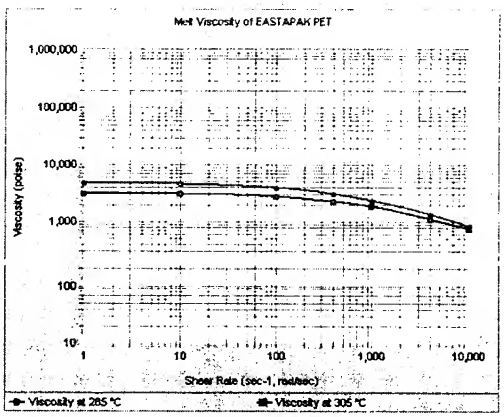

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FIGURE 11F

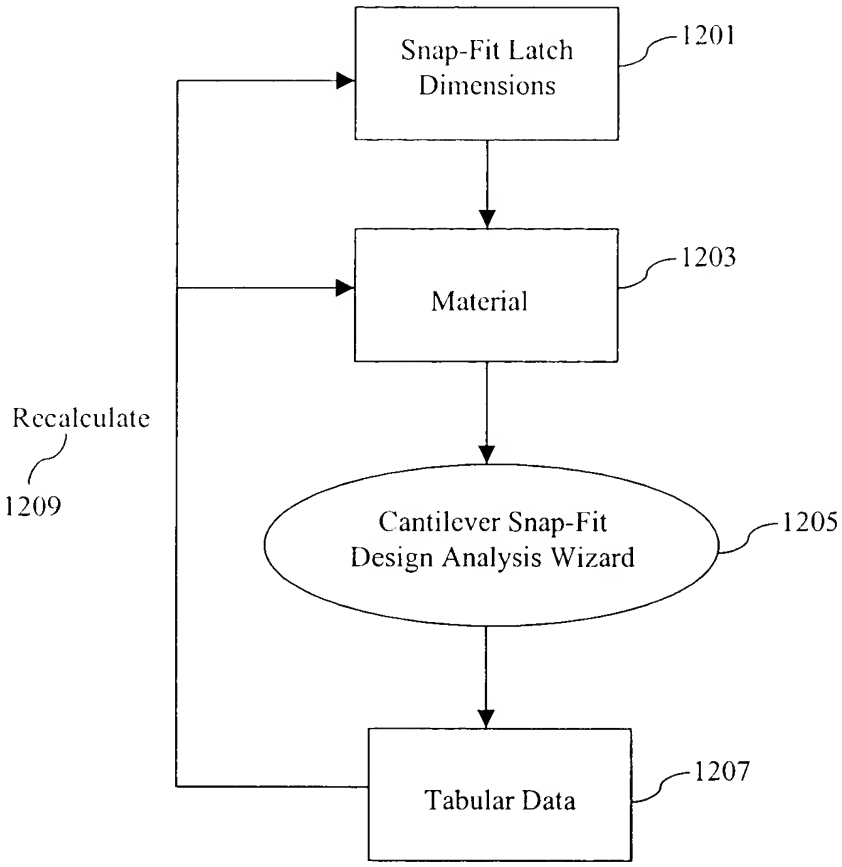

Snap-Fit Latch Dimensions
1201
Material
1203
Recalculate
1209
Cantilever Snap-Fit Design Analysis Wizard
1205
Tabular Data
1207

FIGURE 12A

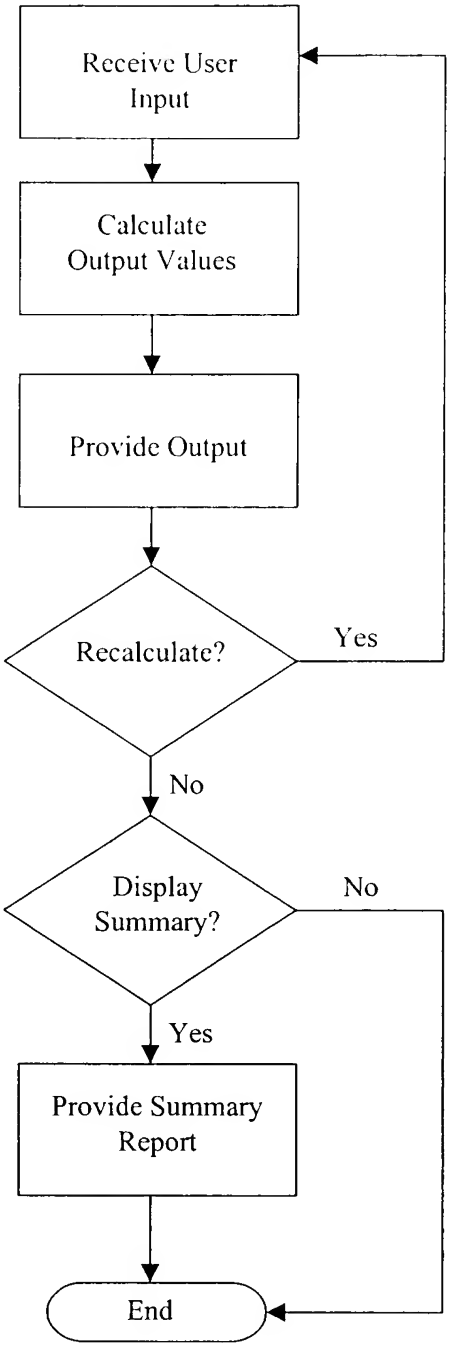

Receive User Input
Calculate Output Values
Provide Output
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 12B

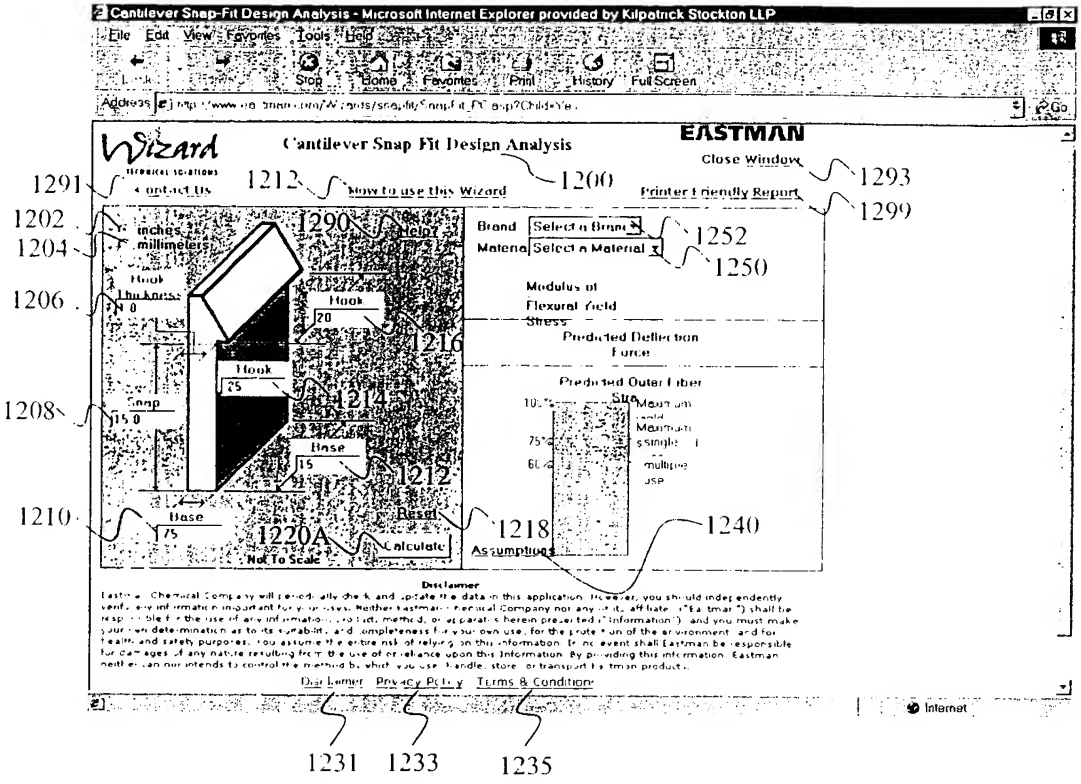
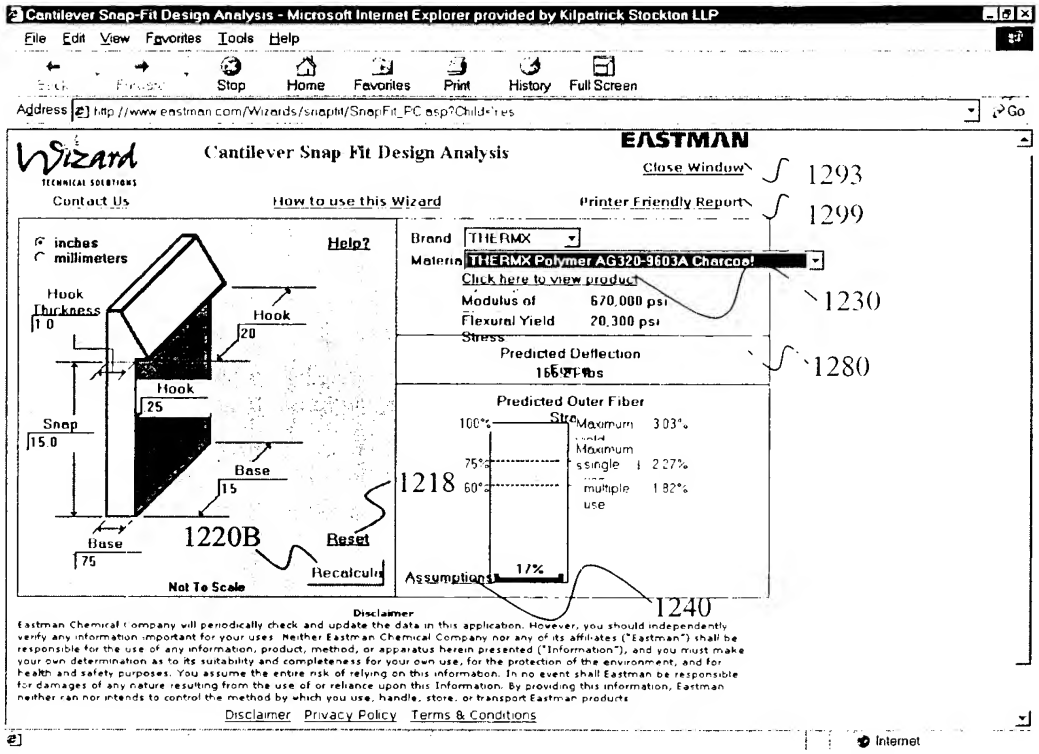

Cantilever Snap-Fit Design Analysis - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Cantilever Snap Fit Design Analysis
EASTMAN
Close Window
Contact Us
How to use this Wizard
Printer Friendly Report
inches
millimeters
Hook
Thickness
Hook
Snap
Base
Base
Brand
Material
Select a Material
Modulus of
Flexural Yield
Stress
Predicted Deflection
Force
Predicted Outer Fiber
Strain
Reset
Calculate
Not To Scale
Assumptions
Disclaimer
Disclaimer
Privacy Policy
Terms & Conditions
Internet
1291
1212
1200
1293
1202
1204
1290
1299
1252
1250
1206
1216
1214
1208
1212
1210
1220A
1218
1240
1231
1233
1235

FIGURE 12C


Cantilever Snap-Fit Design Analysis - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/snapfit/SnapFit_PC.asp?Child=Yes
Go
Wizard
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Cantilever Snap Fit Design Analysis
EASTMAN
Close Window
1293
Contact Us
How to use this Wizard
Printer Friendly Report
1299
inches
millimeters
Help?
Brand THERMX
Materia THERMX Polymer AG320-9603A Charcoal
Click here to view product
Modulus of 670,000 psi
Flexural Yield 20,300 psi
Stress
1230
Predicted Deflection
Predicted Outer Fiber
Hook Thickness 1.0
Hook 2.0
Hook 2.5
Snap 15.0
Base 1.5
Base .75
1220B
Reset
Recalculate
Not To Scale
1218
100%
75%
60%
Maximum
Maximum single use
multiple use
3.03%
2.27%
1.82%
Assumptions
1/%
1280
1240
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Internet

FIGURE 12D

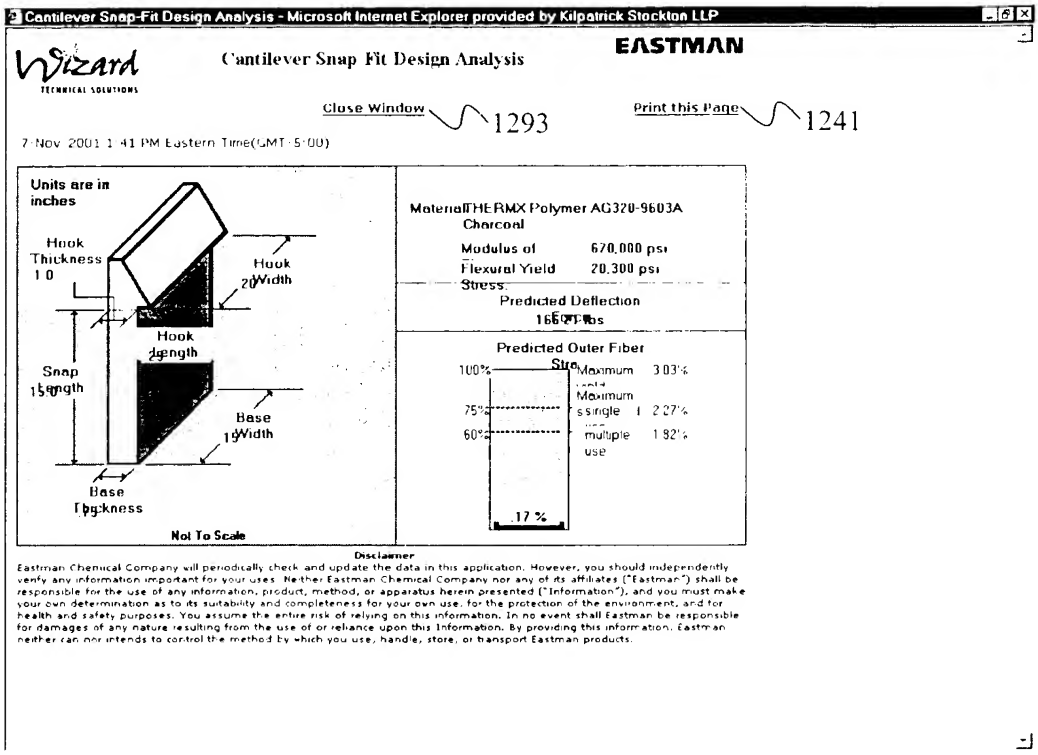
Cantilever Snap-Fit Design Analysis - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Wizard
TECHNICAL SOLUTIONS
Cantilever Snap Fit Design Analysis
EASTMAN
Close Window
1293
Print this Page
1241
7 Nov 2001 1:41 PM Eastern Time(GMT-5:00)
Units are in inches
Hook Thickness
1.0
Hook Width
2.0
Hook Length
2.0
Snap Length
15.0
Base Width
1.0
Base Thickness
Not To Scale
Material THERMX Polymer AG320-9603A Charcoal
Modulus of
Flexural Yield Stress
670,000 psi
20,300 psi
Predicted Deflection
Predicted Outer Fiber Stress
100%
75%
60%
Maximum
Maximum single use
multiple use
3.03%
2.27%
1.82%
17 %
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FIGURE 12E

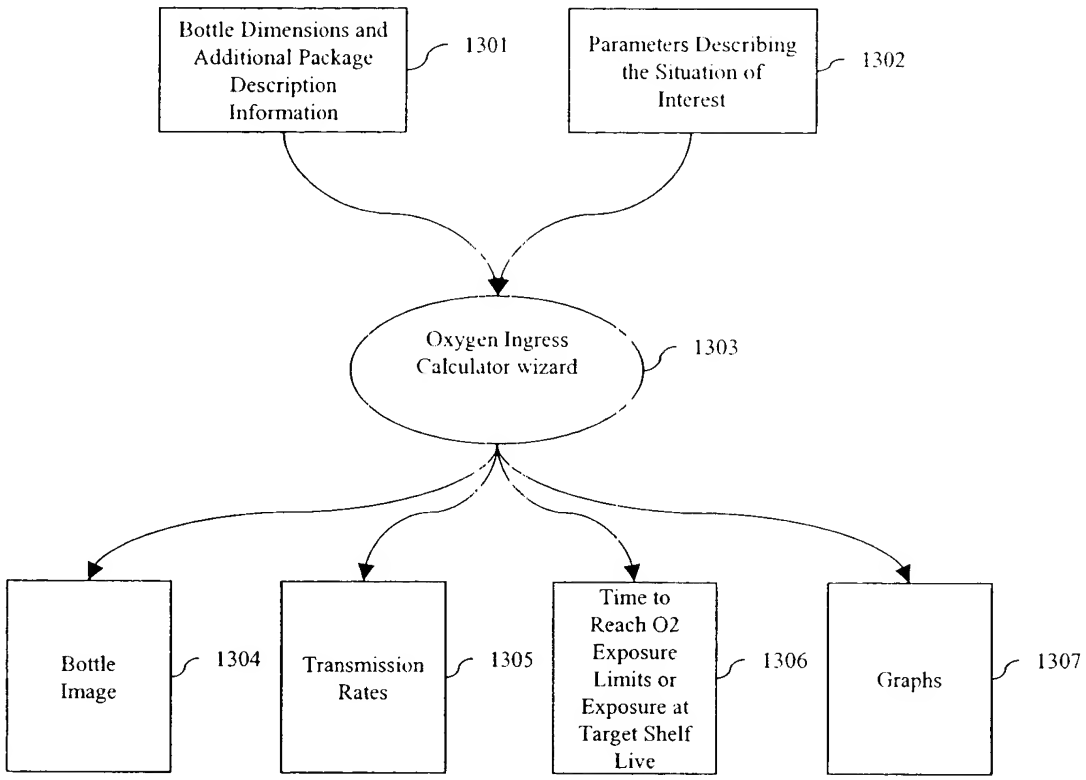

Bottle Dimensions and Additional Package Description Information
1301
Parameters Describing the Situation of Interest
1302
Oxygen Ingress Calculator wizard
1303
Bottle Image
1304
Transmission Rates
1305
Time to Reach O2 Exposure Limits or Exposure at Target Shelf Live
1306
Graphs
1307

FIG. 13A

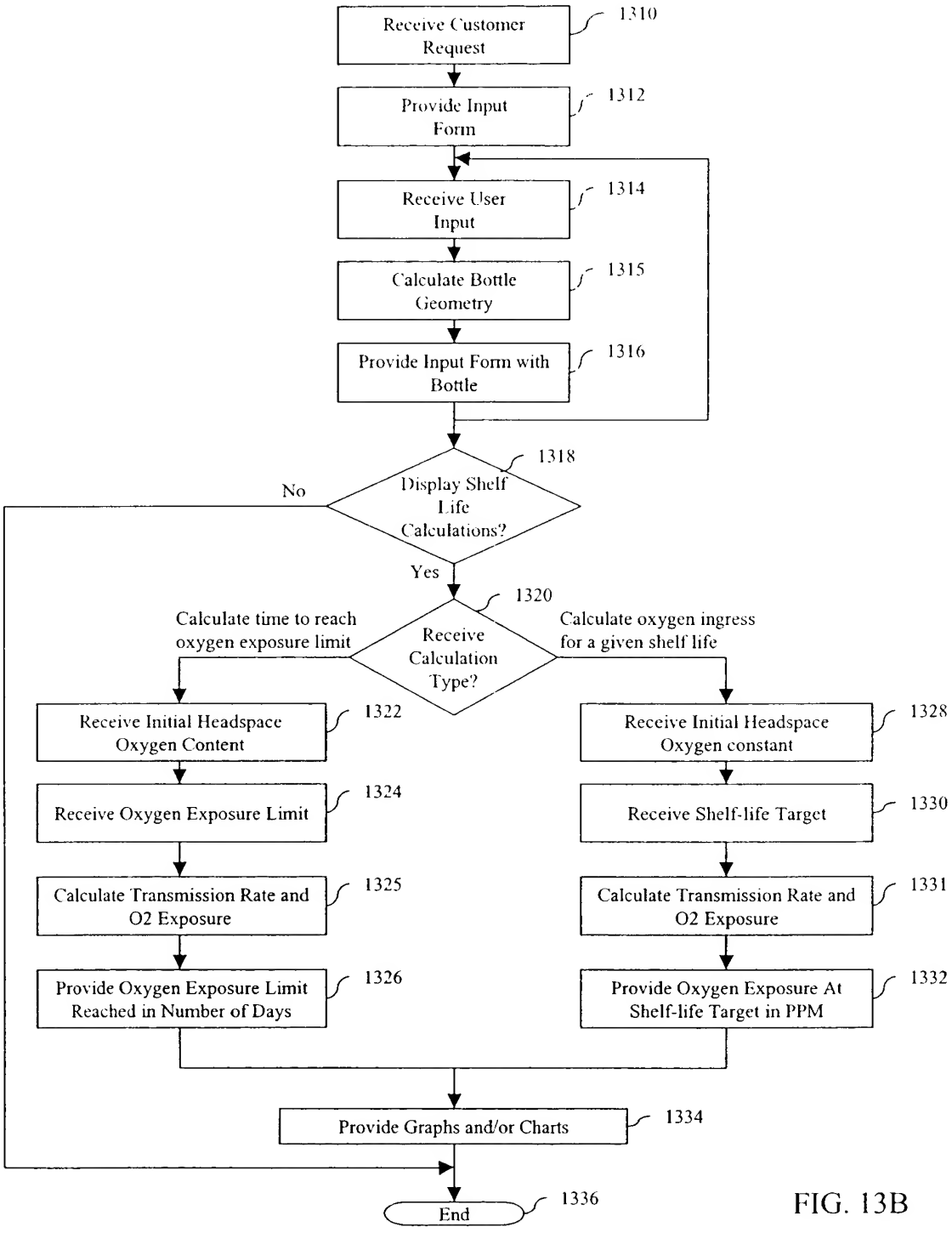

Receive Customer Request
1310
Provide Input Form
1312
Receive User Input
1314
Calculate Bottle Geometry
1315
Provide Input Form with Bottle
1316
Display Shelf Life Calculations?
1318
No
Yes
Receive Calculation Type?
1320
Calculate time to reach oxygen exposure limit
Calculate oxygen ingress for a given shelf life
Receive Initial Headspace Oxygen Content
1322
Receive Oxygen Exposure Limit
1324
Calculate Transmission Rate and O2 Exposure
1325
Provide Oxygen Exposure Limit Reached in Number of Days
1326
Receive Initial Headspace Oxygen constant
1328
Receive Shelf-life Target
1330
Calculate Transmission Rate and O2 Exposure
1331
Provide Oxygen Exposure At Shelf-life Target in PPM
1332
Provide Graphs and/or Charts
1334
End
1336

FIG. 13B

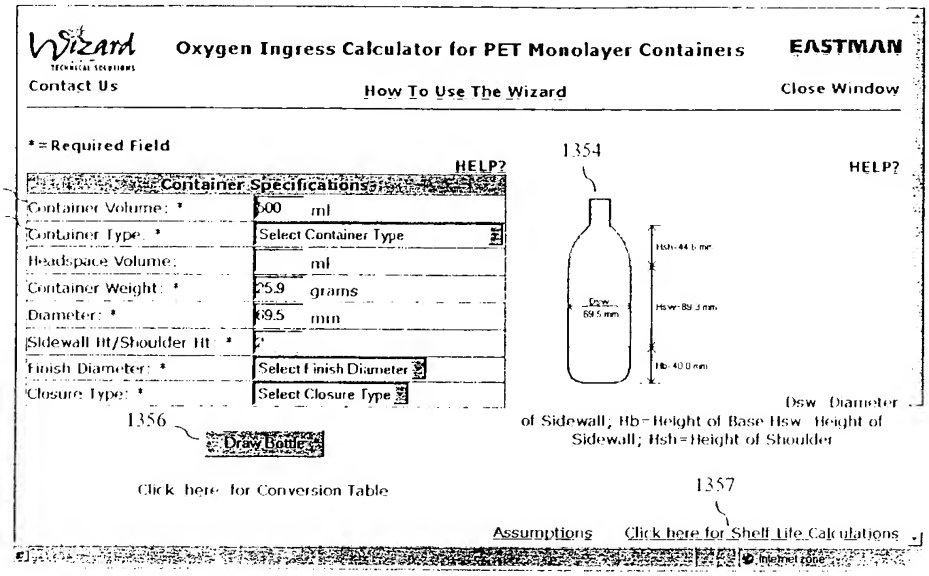


FIG. 13C

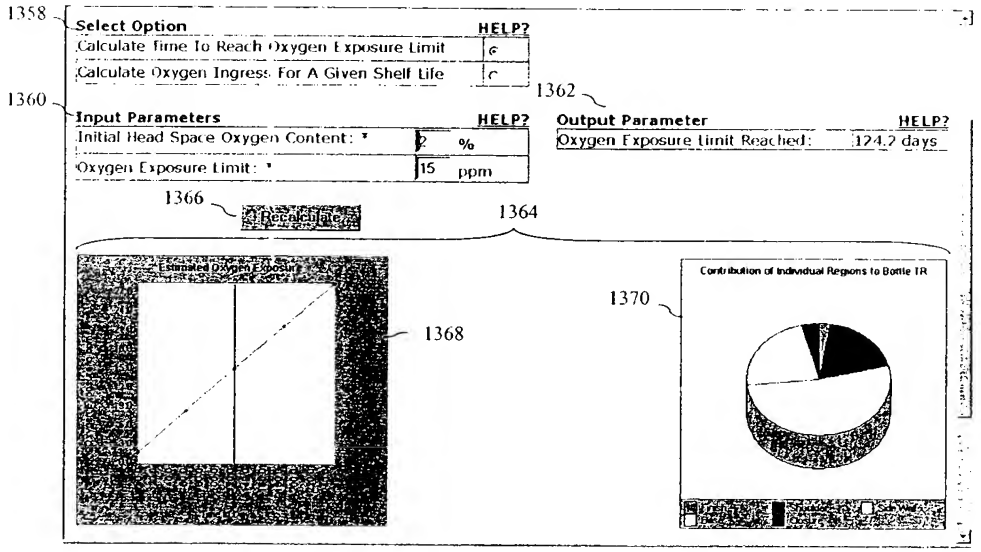


FIG. 13D

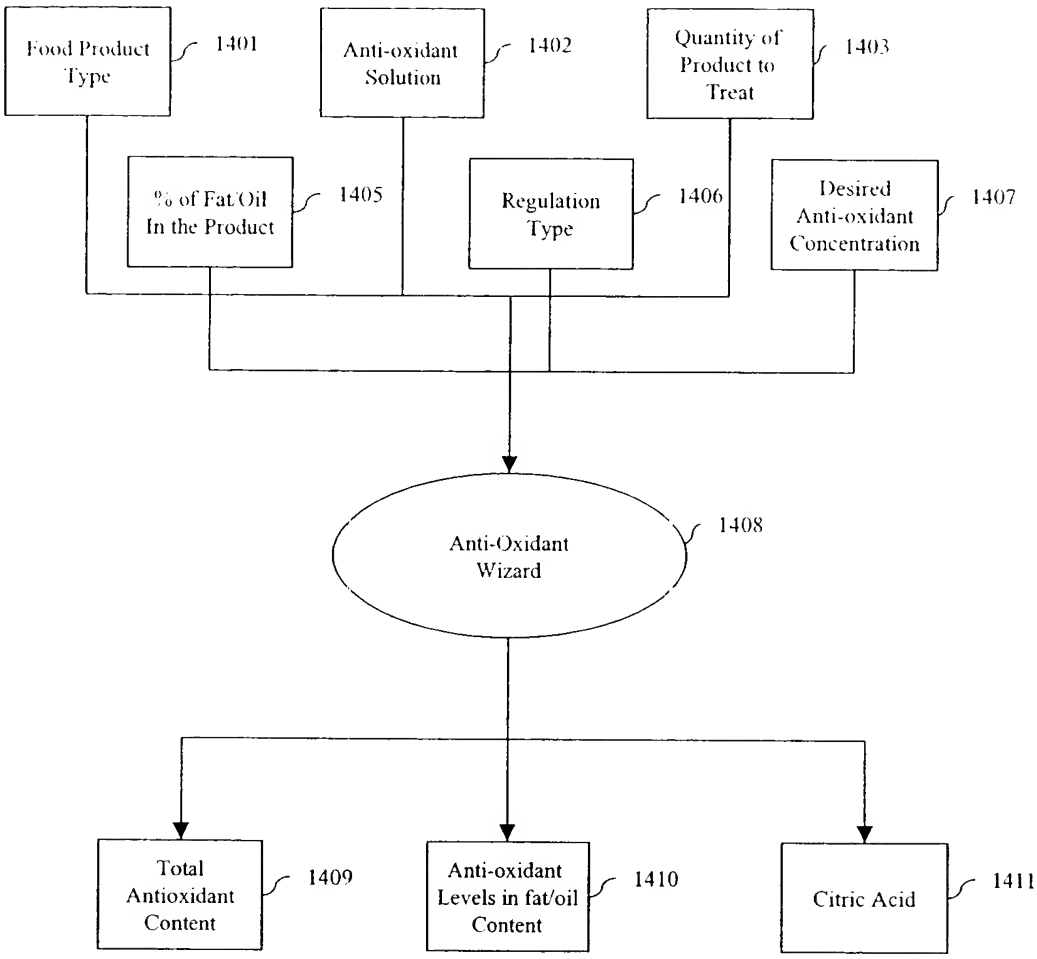

Food Product Type
1401
Anti-oxidant Solution
1402
Quantity of Product to Treat
1403
% of Fat/Oil In the Product
1405
Regulation Type
1406
Desired Anti-oxidant Concentration
1407
Anti-Oxidant Wizard
1408
Total Antioxidant Content
1409
Anti-oxidant Levels in fat/oil Content
1410
Citric Acid
1411

FIG. 14A

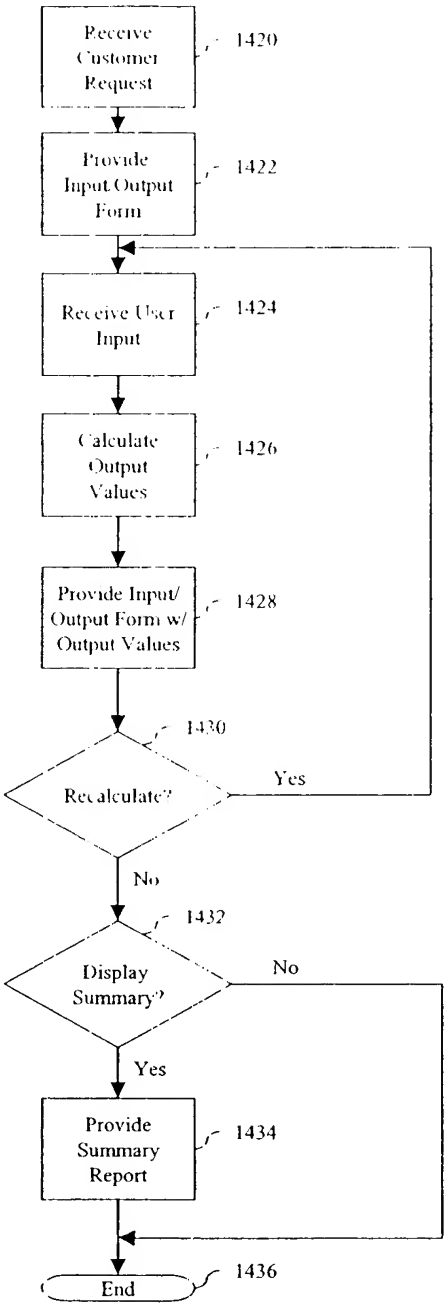

Receive Customer Request
1420
Provide Input Output Form
1422
Receive User Input
1424
Calculate Output Values
1426
Provide Input/ Output Form w/ Output Values
1428
1430
Recalculate?
Yes
No
1432
Display Summary?
No
Yes
Provide Summary Report
1434
End
1436

FIG. 14B

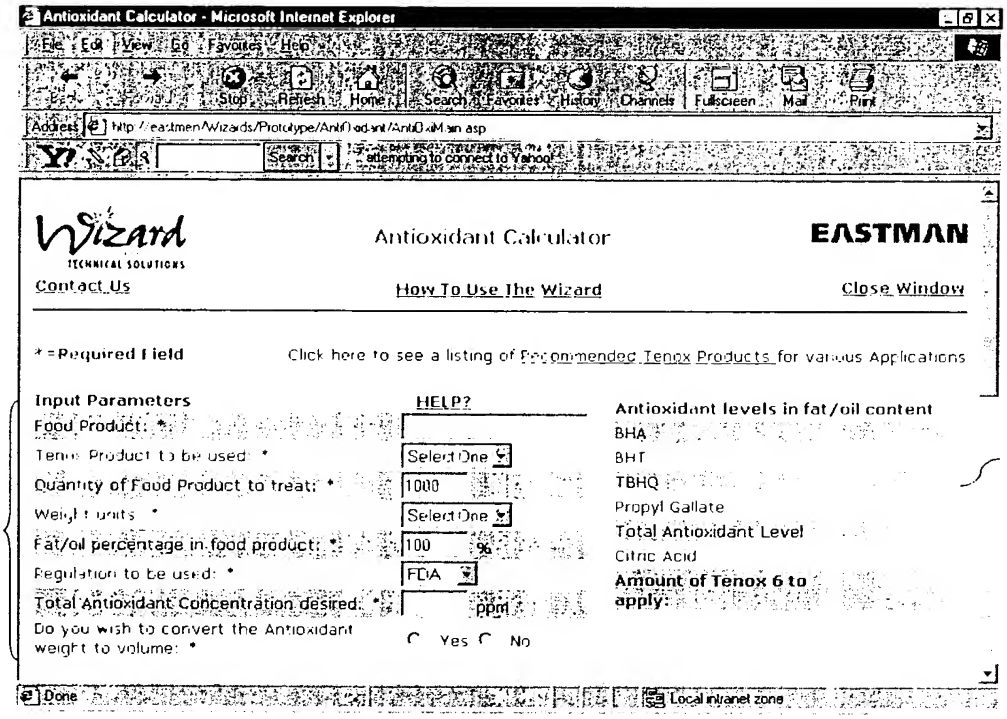

Antioxidant Calculator - Microsoft Internet Explorer
Wizard
TECHNICAL SOLUTIONS
Antioxidant Calculator
EASTMAN
Contact Us
How To Use The Wizard
Close Window
* = Required Field
Click here to see a listing of Recommended Tenox Products for various Applications
Input Parameters
HELP?
Food Product: *
Tenox Product to be used: *
Select One
Quantity of Food Product to treat: *
1000
Weight units: *
Select One
Fat/oil percentage in food product: *
100
%
Regulation to be used: *
FDA
Total Antioxidant Concentration desired: *
ppm
Do you wish to convert the Antioxidant weight to volume: *
Yes
No
Antioxidant levels in fat/oil content
BHA
BHT
TBHQ
Propyl Gallate
Total Antioxidant Level
Citric Acid
Amount of Tenox 6 to apply:
1450
1452
Done
Local intranet zone

FIG. 14C

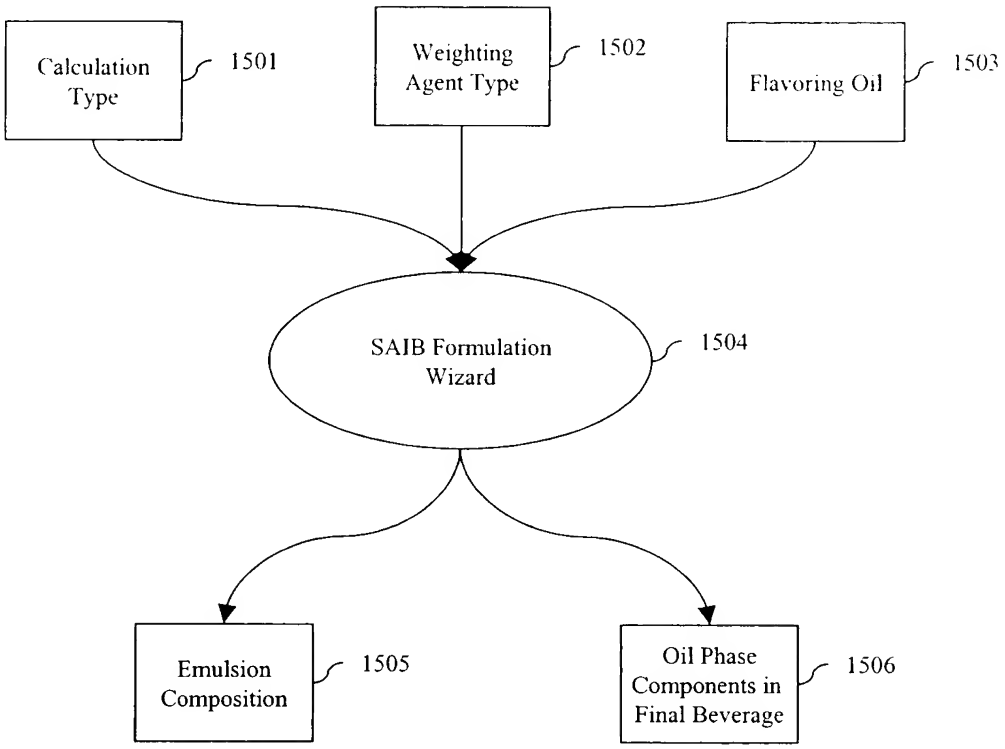

Calculation Type
1501
Weighting Agent Type
1502
Flavoring Oil
1503
SAIB Formulation Wizard
1504
Emulsion Composition
1505
Oil Phase Components in Final Beverage
1506

FIG. 15A

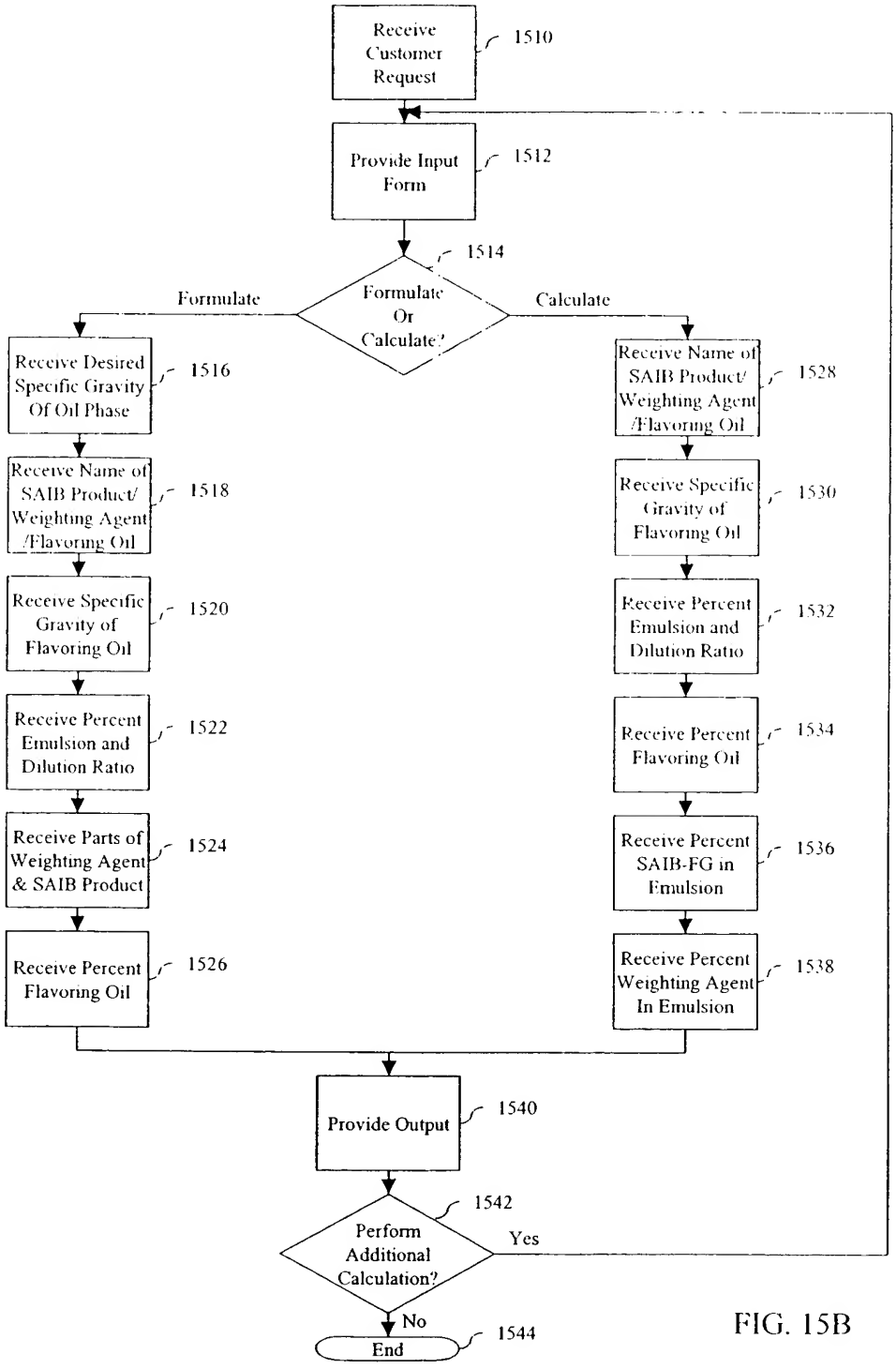

Receive Customer Request
1510
Provide Input Form
1512
1514
Formulate Or Calculate?
Formulate
Calculate
Receive Desired Specific Gravity Of Oil Phase
1516
Receive Name of SAIB Product/ Weighting Agent /Flavoring Oil
1518
Receive Specific Gravity of Flavoring Oil
1520
Receive Percent Emulsion and Dilution Ratio
1522
Receive Parts of Weighting Agent & SAIB Product
1524
Receive Percent Flavoring Oil
1526
Receive Name of SAIB Product/ Weighting Agent /Flavoring Oil
1528
Receive Specific Gravity of Flavoring Oil
1530
Receive Percent Emulsion and Dilution Ratio
1532
Receive Percent Flavoring Oil
1534
Receive Percent SAIB-FG in Emulsion
1536
Receive Percent Weighting Agent In Emulsion
1538
Provide Output
1540
1542
Perform Additional Calculation?
Yes
No
End
1544

FIG. 15B

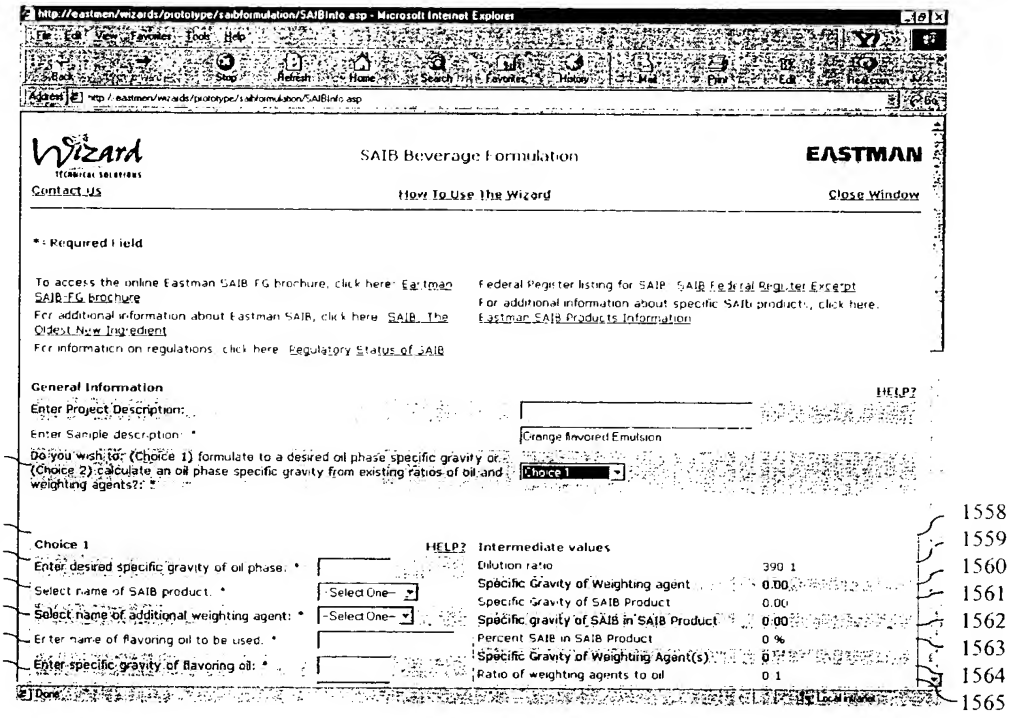

http://eastmen/wizards/prototype/saibformulation/SAIBInfo.asp - Microsoft Internet Explorer
Wizard
SAIB Beverage Formulation
EASTMAN
Contact us
How To Use The Wizard
Close Window
*: Required Field
To access the online Eastman SAIB FG brochure, click here: Eastman SAIB FG brochure
For additional information about Eastman SAIB, click here: SAIB, The Oldest New Ingredient
For information on regulations, click here: Regulatory Status of SAIB
Federal Register listing for SAIB: SAIB Federal Register Excerpt
For additional information about specific SAIB products, click here: Eastman SAIB Products Information
General Information
HELP?
Enter Project Description:
Enter Sample description: *
Orange flavored Emulsion
1550
Do you wish to: (Choice 1) formulate to a desired oil phase specific gravity or (Choice 2) calculate an oil phase specific gravity from existing ratios of oil and weighting agents?: *
Choice 1
1552
1553
Choice 1
HELP?
Enter desired specific gravity of oil phase: *
1554
Select name of SAIB product: *
-Select One-
1555
Select name of additional weighting agent: *
-Select One-
1556
Enter name of flavoring oil to be used: *
1557
Enter specific gravity of flavoring oil: *
1558
Intermediate values
1559
Dilution ratio
390 1
1560
Specific Gravity of Weighting agent
0.00
1561
Specific Gravity of SAIB Product
0.00
1562
Specific gravity of SAIB in SAIB Product
0.00
1563
Percent SAIB in SAIB Product
0 %
1564
Specific Gravity of Weighting Agent(s)
0
Ratio of weighting agents to oil
0 1
1565
Done
Local intranet

FIG. 15C

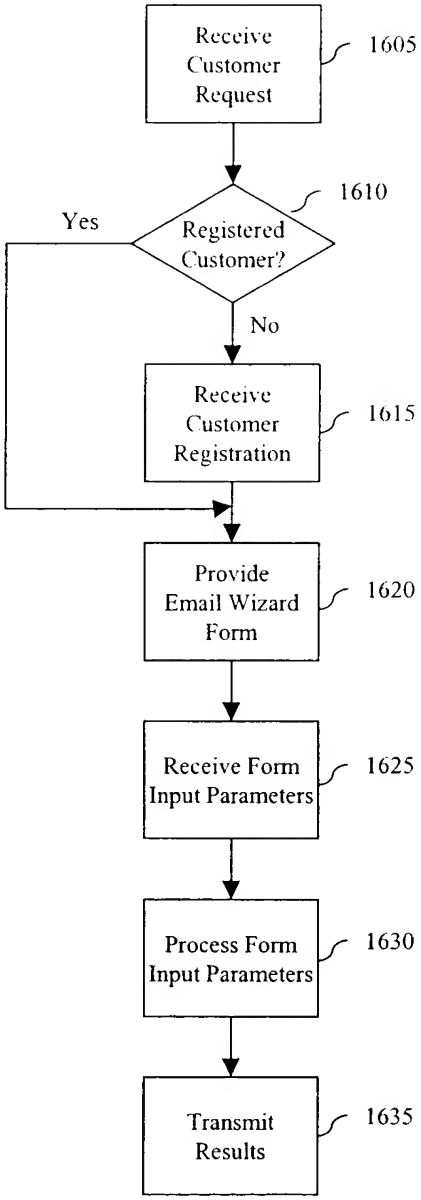

Receive Customer Request
1605
Registered Customer?
1610
Yes
No
Receive Customer Registration
1615
Provide Email Wizard Form
1620
Receive Form Input Parameters
1625
Process Form Input Parameters
1630
Transmit Results
1635

FIG. 16

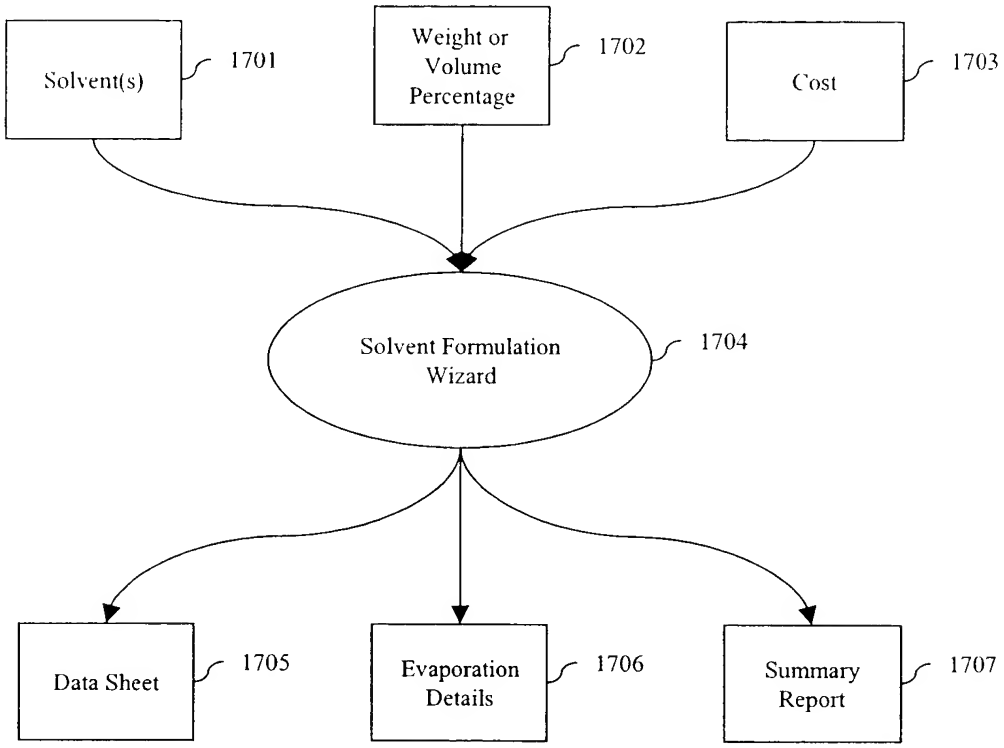

Solvent(s)
1701
Weight or Volume Percentage
1702
Cost
1703
Solvent Formulation Wizard
1704
Data Sheet
1705
Evaporation Details
1706
Summary Report
1707

FIG. 17A

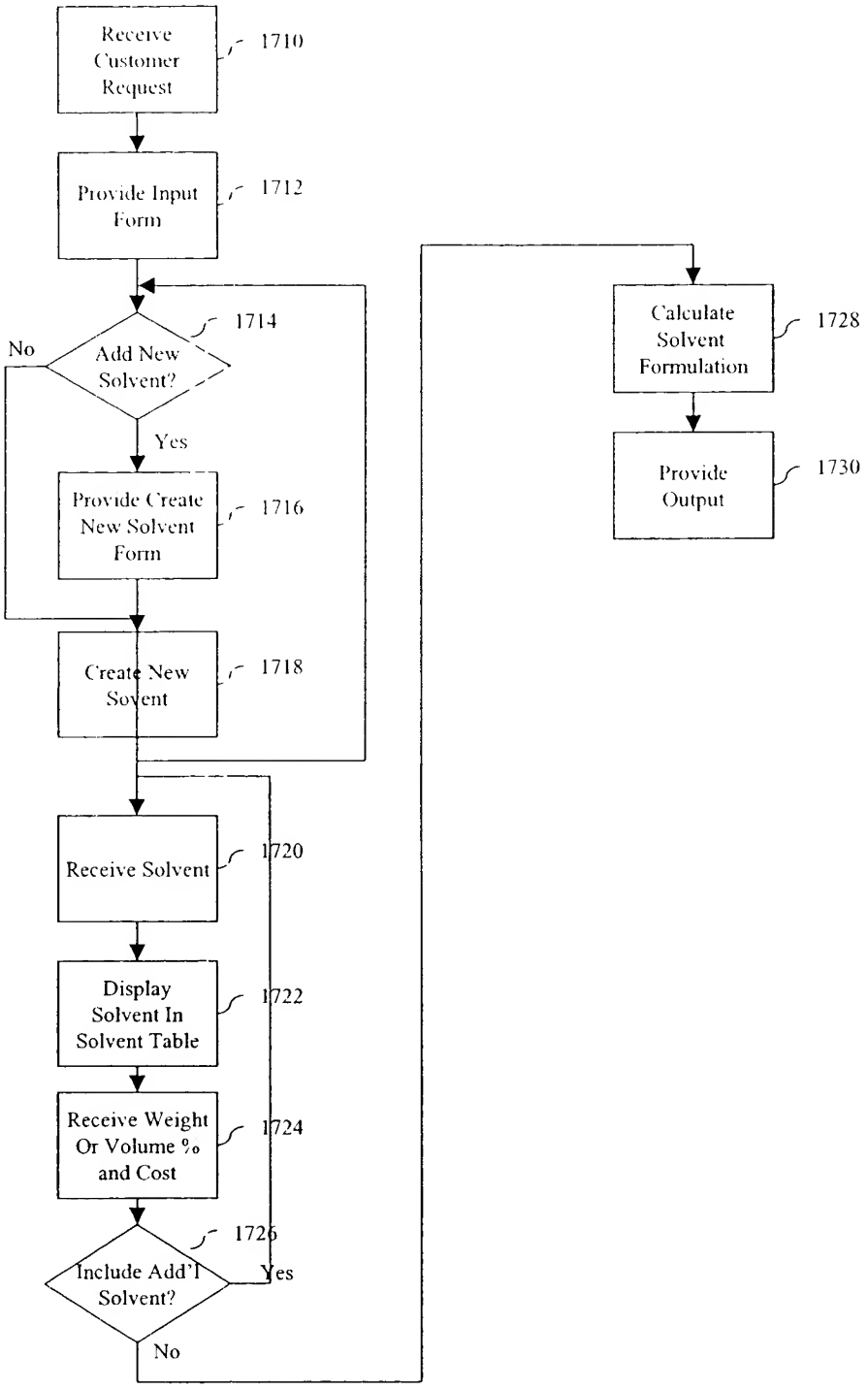

Receive Customer Request
1710
Provide Input Form
1712
Add New Solvent?
1714
No
Yes
Provide Create New Solvent Form
1716
Create New Solvent
1718
Receive Solvent
1720
Display Solvent In Solvent Table
1722
Receive Weight Or Volume % and Cost
1724
Include Add'l Solvent?
1726
Yes
No
Calculate Solvent Formulation
1728
Provide Output
1730

FIG. 17B

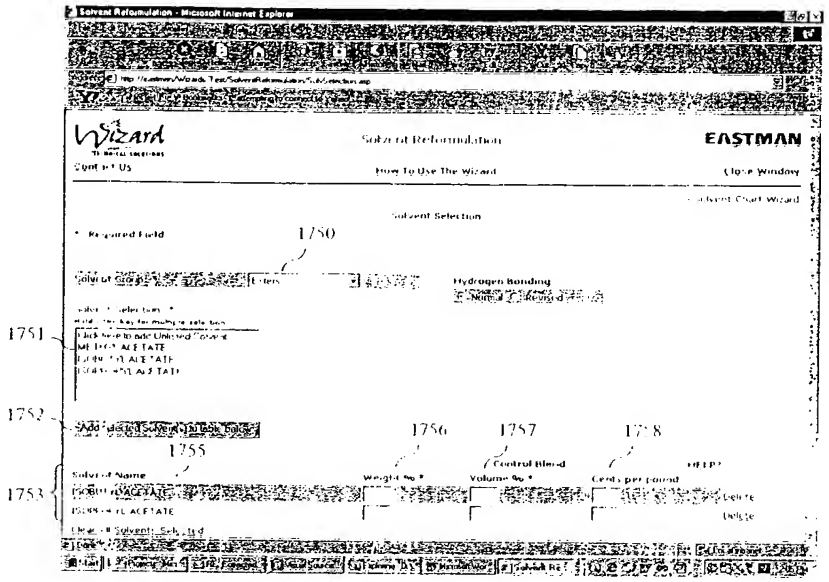


FIG. 17C

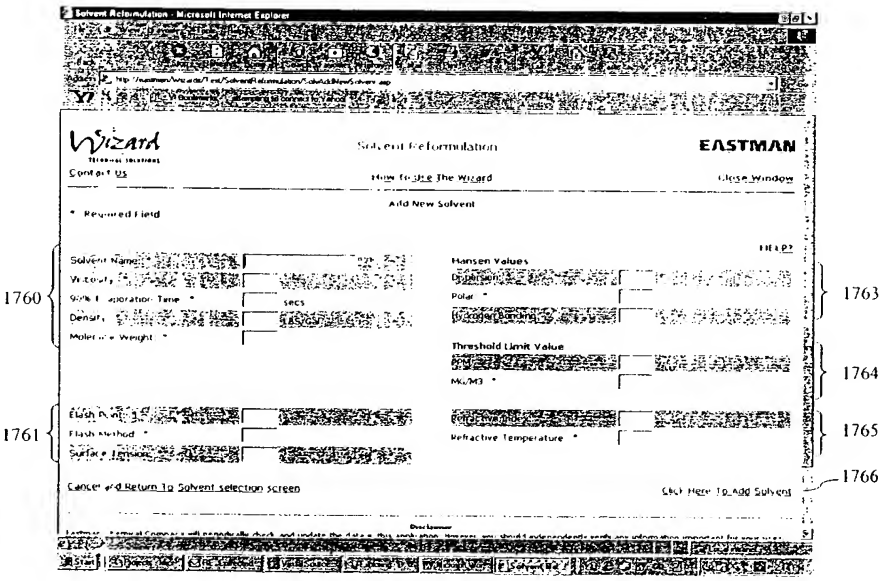


FIG. 17D

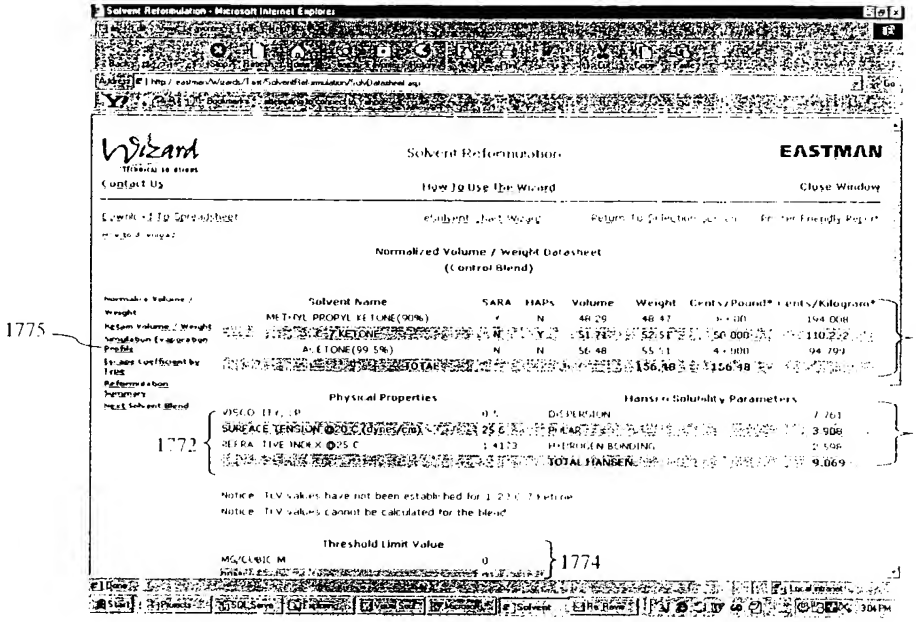


FIG. 17E

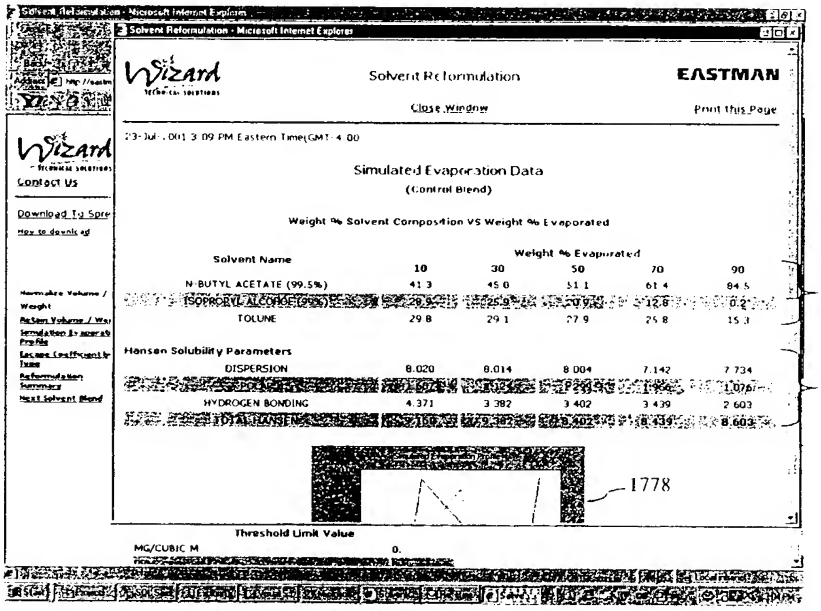


FIG. 17F

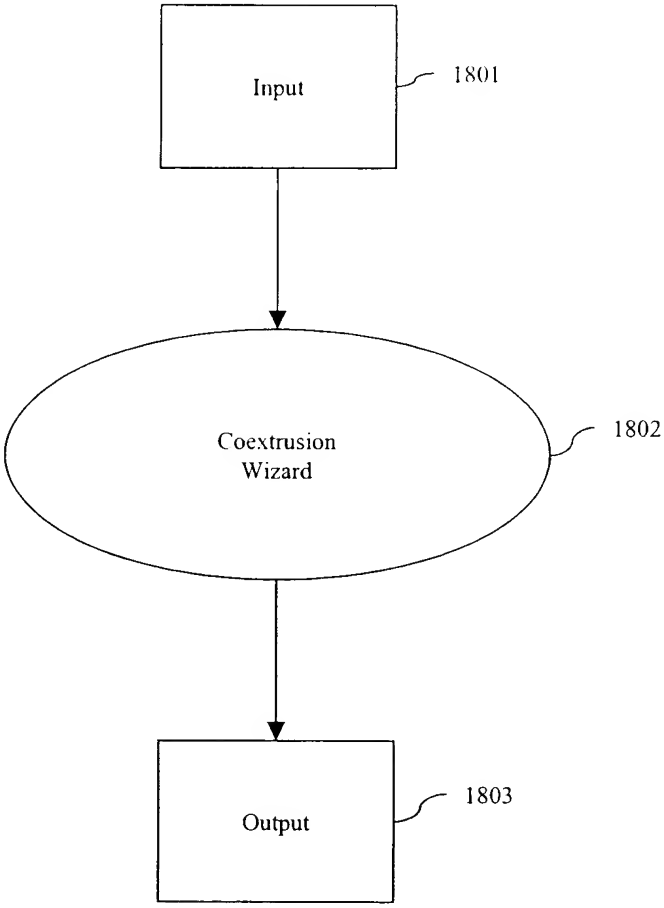


FIG. 18

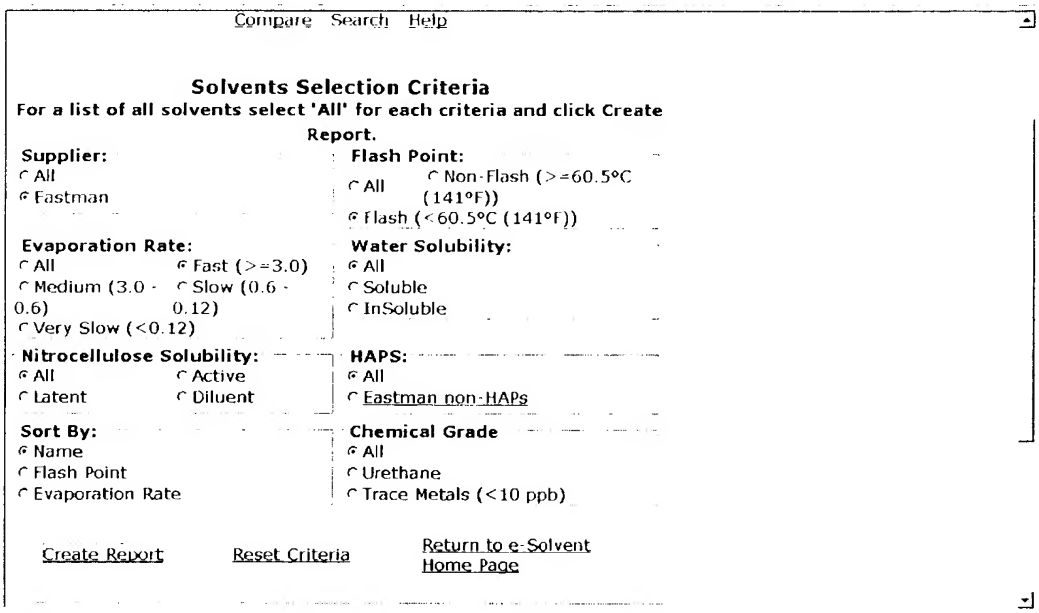

Compare Search Help
Solvents Selection Criteria
For a list of all solvents select 'All' for each criteria and click Create Report.
Supplier:
All
Eastman
Flash Point:
All
Non-Flash (>=60.5°C (141°F))
Flash (<60.5°C (141°F))
Evaporation Rate:
All
Fast (>=3.0)
Medium (3.0 - 0.6)
Slow (0.6 - 0.12)
Very Slow (<0.12)
Water Solubility:
All
Soluble
InSoluble
Nitrocellulose Solubility:
All
Active
Latent
Diluent
HAPS:
All
Eastman non-HAPs
Sort By:
Name
Flash Point
Evaporation Rate
Chemical Grade
All
Urethane
Trace Metals (<10 ppb)
Create Report
Reset Criteria
Return to e-Solvent Home Page

FIG. 19A

Sort By:
(•) Name ( ) Flash Point
( ) Evaporation Rate

Solvents Report

Selection Criteria: Sorted By Name, Supplier = Eastman, Flash Point = Flash (<60.5°C (141° F)), Evap Rate = Fast (>=3.0), Water = All, Nitrocellulose = All, HAPS = All, Chemical Grade = All

Solvent	Eastman Product?	Evaporation Rate, nBuOAc = 1	Flash Point
EASTMAN Acetone, High Purity Sales Grade	Yes	6.3	20°C (-4°F)
EASTAPURE Ethyl Acetate	Yes	4.1	-4°C (24°F)
EASTMAN Ethyl Acetate,85-88%	Yes	4.2	-3°C (27°F)
EASTMAN Ethyl Acetate, Urethane Grade	Yes	4.1	-4°C (24°F)
EASTMAN Isopropyl Acetate	Yes	3	2°C (35°F)
EASTMAN Methyl Acetate	Yes	6.0	-13°C (9°F)
EASTMAN Methyl Acetate	Yes	6.0	-15°C (9°F)
EASTMAN Methyl Acetate	Yes	6.0	-13°C (5°F)
EASTMAN Methyl Acetate	Yes	6.0	-15°C (5°F)

Return to Selection Page Printer Friendly Report

FIG. 19B

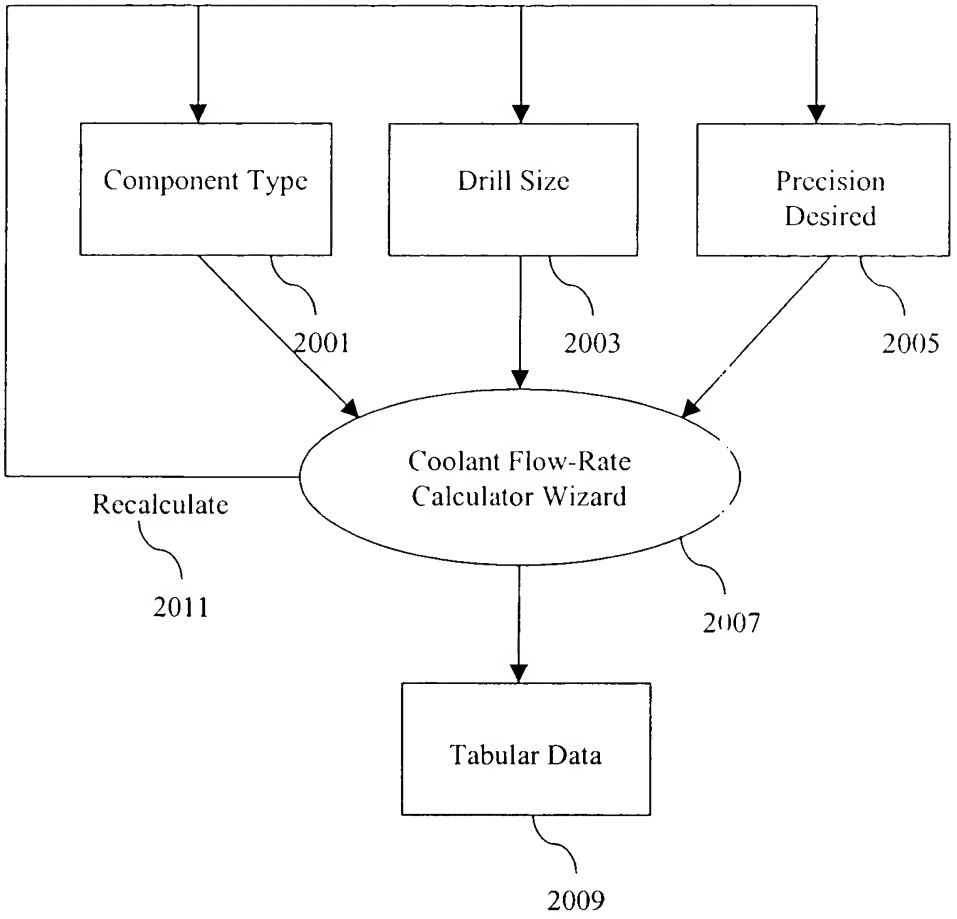

Component Type
Drill Size
Precision Desired
2001
2003
2005
Coolant Flow-Rate Calculator Wizard
Recalculate
2011
2007
Tabular Data
2009

FIGURE 20A

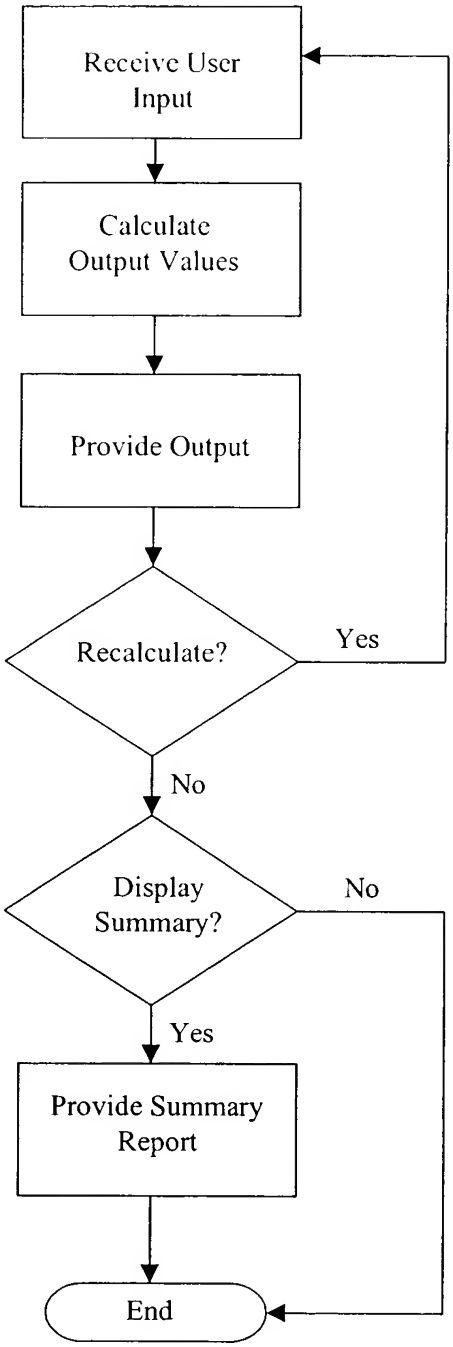
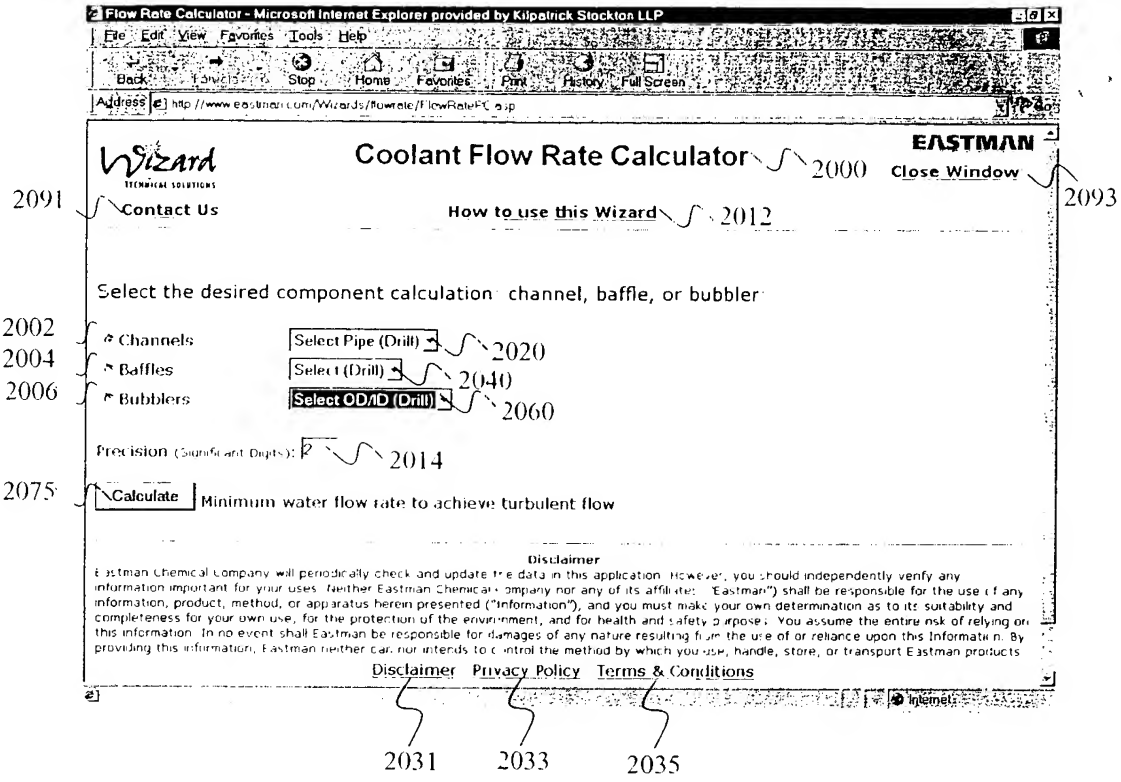

Receive User Input
Calculate Output Values
Provide Output
Recalculate?
Yes
No
Display Summary?
No
Yes
Provide Summary Report
End

FIGURE 20B


Flow Rate Calculator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/flowrate/FlowRateFC.asp
Wizard
TECHNICAL SOLUTIONS
Coolant Flow Rate Calculator
2000
EASTMAN
Close Window
2093
2091
Contact Us
How to use this Wizard
2012
Select the desired component calculation: channel, baffle, or bubbler
2002
Channels
Select Pipe (Drill)
2020
2004
Baffles
Select (Drill)
2040
2006
Bubblers
Select OD/ID (Drill)
2060
Precision (Significant Digits):
2014
2075
Calculate
Minimum water flow rate to achieve turbulent flow
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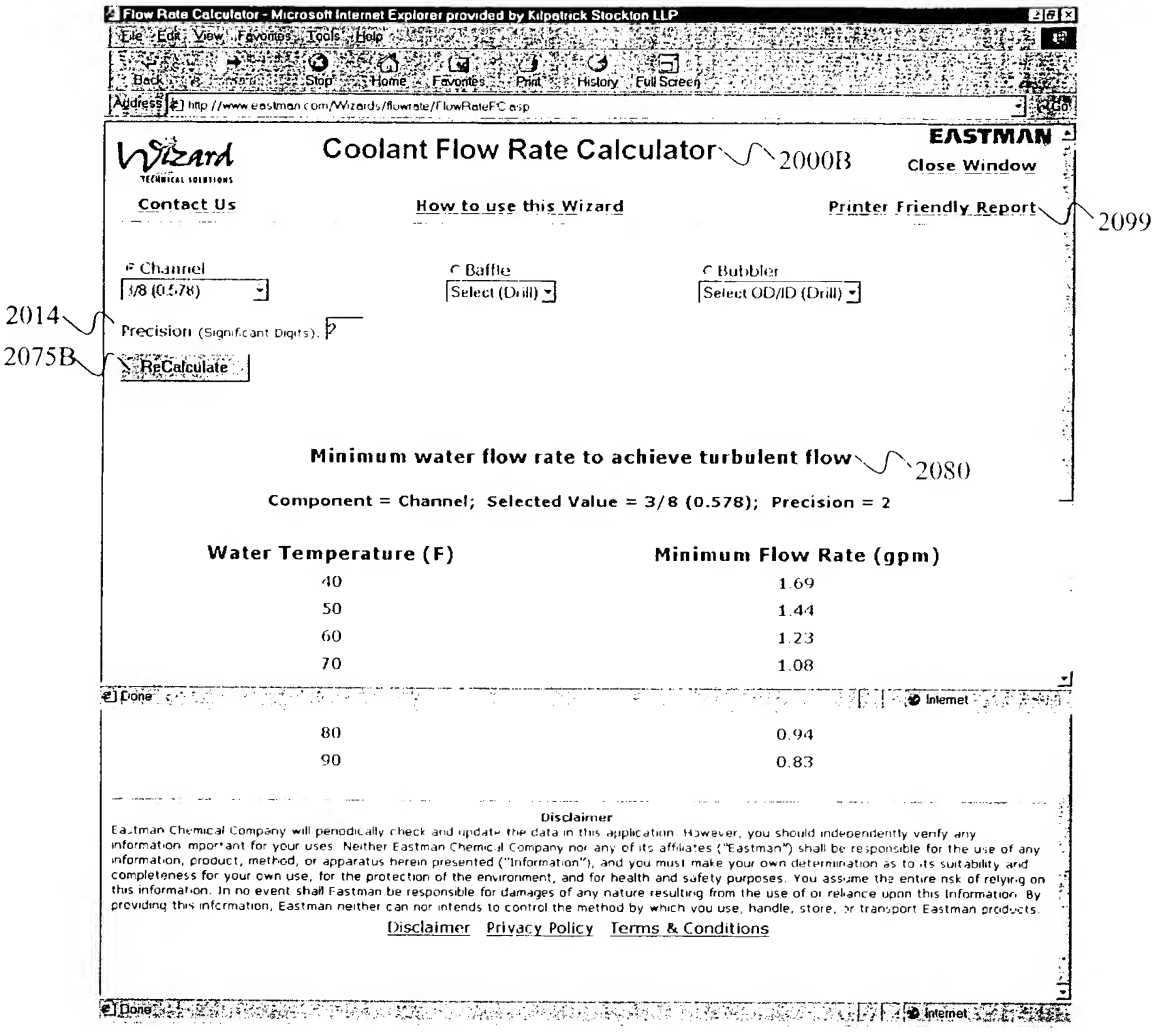
Disclaimer
Privacy Policy
Terms & Conditions
2031
2033
2035
Internet

FIGURE 20C


Flow Rate Calculator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
File Edit View Favorites Tools Help
Back Stop Home Favorites Print History Full Screen
Address http://www.eastman.com/Wizards/flowrate/FlowRateFC.asp
Wizard
TECHNICAL SOLUTIONS
Coolant Flow Rate Calculator
2000B
EASTMAN
Close Window
Contact Us
How to use this Wizard
Printer Friendly Report
2099
Channel
3/8 (0.578)
Baffle
Select (Drill)
Bubbler
Select OD/ID (Drill)
2014
Precision (Significant Digits).
2
2075B
ReCalculate
Minimum water flow rate to achieve turbulent flow
2080
Component = Channel; Selected Value = 3/8 (0.578); Precision = 2
Water Temperature (F)
Minimum Flow Rate (gpm)
40 1.69
50 1.44
60 1.23
70 1.08
Done
Internet
80 0.94
90 0.83
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Disclaimer Privacy Policy Terms & Conditions
Done
Internet

FIGURE 20D

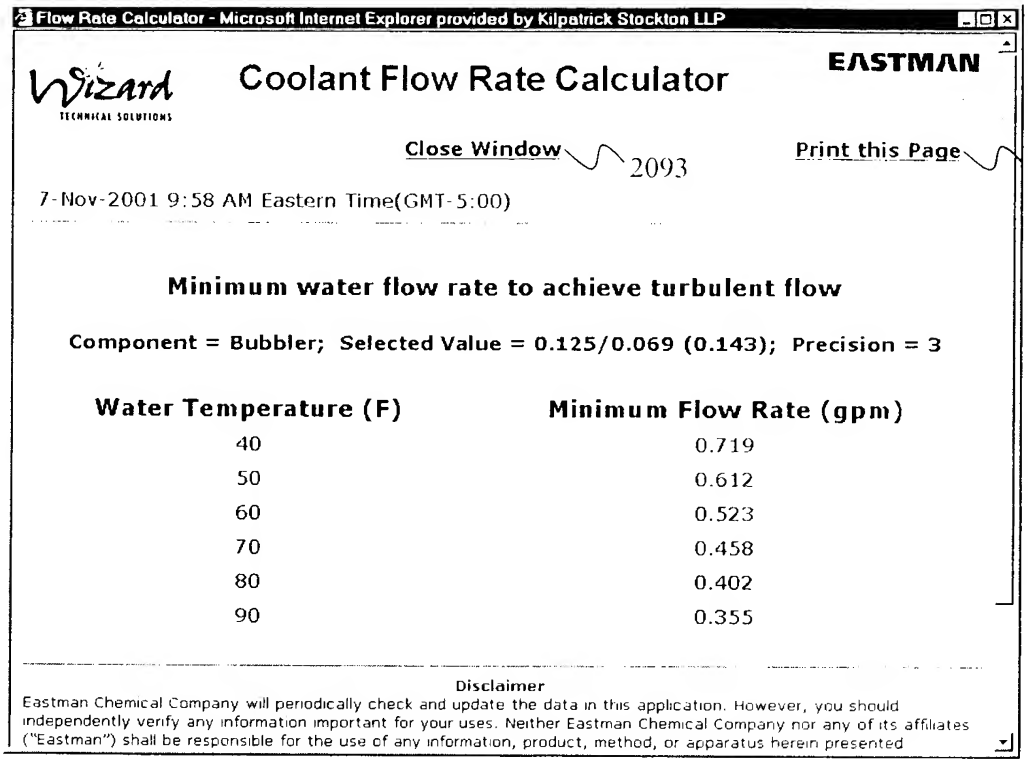
Flow Rate Calculator - Microsoft Internet Explorer provided by Kilpatrick Stockton LLP
Wizard
TECHNICAL SOLUTIONS
Coolant Flow Rate Calculator
EASTMAN
Close Window
2093
Print this Page
2041
7-Nov-2001 9:58 AM Eastern Time(GMT-5:00)
Minimum water flow rate to achieve turbulent flow
Component = Bubbler; Selected Value = 0.125/0.069 (0.143); Precision = 3
Water Temperature (F)
Minimum Flow Rate (gpm)
40 0.719
50 0.612
60 0.523
70 0.458
80 0.402
90 0.355
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FIGURE 20E